

A
A
0
0
0
7
0
6
0
3
9
5



UC SOUTHERN REGIONAL LIBRARY FACILITY

E



THE LIBRARY
OF
THE UNIVERSITY
OF CALIFORNIA
LOS ANGELES

Ex Libris

SIR MICHAEL SADLER

ACQUIRED 1948

WITH THE HELP OF ALUMNI OF THE
SCHOOL OF EDUCATION

3 . 5 . 1000
1905

Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

THE BOY AND HIS SCHOOL

THE BOY AND HIS SCHOOL

WHAT IT CAN AND WHAT IT
CANNOT GIVE HIM

By ROBERT L. LEIGHTON

HEADMASTER OF THE BRISTOL GRAMMAR SCHOOL

LONDON
JOHN MURRAY, ALBEMARLE STREET, W.

1905

LA
635
L53

THE BOY AND HIS SCHOOL

It were much to be desired that educational discussion could be lifted to the level of a sound logic, with its terms clearly and rigorously defined; then the movements which arise out of discussion would not bear such a dangerous likeness to the blind rushes of a riotous mob, which ever responds most readily to the cry "Down with" something or other, no matter what.

For example, what is to be the meaning of the term Education? Most commonly it is used as the equivalent of Schooling; but it is also very often used in the wider sense of formation of a (satisfactory) character. But it is usually assumed that, even in this wider sense, it is a process which can be stopped at will, and is in fact stopped for the most part, if not entirely, during vacations and other off-hours. Yet since the mind is growing in some direction, and habits of some sort are forming, during every second of waking life at any rate, education

A

816680

cannot be made to mean less than the whole effect produced upon the mind by the sum of the external forces which exercise any influence upon its growth, whether satisfactory or otherwise. But serious practical mischief has been done, and is done still, owing to the confusion consequent upon the use of the term Education, sometimes in a very wide sense, sometimes in the restricted sense of schooling.

How restricted a sense this is may not be generally realised, and so it may be worth while to give the actual figures.

If we reckon that a boy sleeps sixty-three hours of the week, spends thirty hours in school, and twelve more in preparation, these forty-two hours of schooling only come to forty per cent. of his waking hours in a week of full work; taking the whole year, and allowing for vacations, the forty per cent. sinks to thirty, and everyone knows that even the thirty per cent. is subject to enormous deductions under the heads of absence, and still more of inattention; but the seventy per cent. assigned to the forces other than schooling is liable to no deductions, unless it be for longer hours of sleep; on the contrary, every stray minute lost to schooling is a minute gained by the other forces. Moreover these, which to distinguish them from schooling, we may provisionally call the unofficial agencies of education, not merely engross at least seventy per cent. of

each year even of school life, but they begin with the child in his cradle, and often prove more powerful and effective than any official teaching, both in those early years and afterwards. Consider how much we learn from them in the first five or seven years of our lives, just when the difficulty of teaching us is the greatest, because the less we know, the harder it is to learn. Perhaps this is all quite obvious, but is certainly not acted upon, nor even so fully recognised as might be expected, its recognition being restricted to the moral influence of unofficial teaching; it is admitted that a good school will hardly counteract the effect of a bad home or vicious companions. It is not apparently understood that the same rule holds good in the case of intellectual training; the unofficial teaching may reinforce or may even directly counteract the schooling, as, for instance, while the school is trying to teach a boy English—during one-fourth of his waking hours—if, for the other three-fourths his surroundings are teaching him the local dialect, the result will be what is depicted in the following letter which appeared in the *Western Daily Press*, 18th January 1898:

“Permit me, as a practical man of business, to lay before you the following particulars which took place, precisely as I give them, upon the occasion of my recently advertising for a boy for my business:

“No. 1 boy who applied for the vacancy informed me that he had successfully passed the VIth Standard. He appeared an intelligent lad, and told me he had learnt Algebra, Euclid, Grammar, Composition and Drawing. Asking the boy if he had brought a character with him, his reply was, ‘I haven’t got no character, sir.’ No. 2 now made his appearance. He had also passed the VIth. Amongst other questions, I asked this lad if he knew his way about Clifton. ‘No, sir,’ he replied, ‘but I knows my way about Bristol.’ Now for lad No. 3. He had passed Standard VII. ‘Well, my boy,’ I asked, ‘what business is your father?’ His reply was, ‘I haven’t got no father, sir.’ Then came boy No. 4, an extremely bright-looking lad, evidently a lad naturally of good parts. ‘Well, my lad, what have you to say for yourself? What have you done at school?’ He replied that he had passed Standard VII. and was in the ex-VIIth; he had learnt Science, French, Algebra, Mathematics and Shorthand; had obtained honours in Grammar, Composition and Drawing. ‘Where have you worked since you left school, my lad?’ I asked. He replied, ‘I haven’t worked nowhere, sir.’ I said, ‘You seem to be a strong boy; did you have any drilling at school?’ ‘Yes, sir, we learnt gymnastics.’ ‘But’ I said, ‘did you practise in the schoolroom?’ ‘No,’ he replied, ‘we practised in an ‘all, sir’ (meaning ‘a hall’). This lad had been nine years in one of our leading schools.

“THOMAS THATCHER.”

.

It would be unfair to the Elementary schools not to say that considerable personal knowledge of boys from the higher Standards makes me sure that in 1898—I cannot say the same of 1904—if Mr Thatcher had tried his candidates with written work, he would have found them quite able to write grammatically and spell correctly: yet it would have been by a conscious effort—exactly like doing a piece of French or German composition, since not literary English, as taught them at school, but the dialect taught by unofficial agencies remained the language in which the boys spoke and thought. Here then we see the official and unofficial teachers in direct opposition to each other, and the unofficial winning decisively though the school had every other condition in its favour; for at that time ex-VIIth boys were not very many; they were the pick of their schools, excelling their companions in industry and ability; they wished to learn, and co-operated with their schoolmasters; yet although they and their schoolmasters had done their best, how meagre was the result of all their efforts, when the unofficial agencies had opposed them. Mr Thatcher thought there was no result at all in the instances which came under his observation, and that would be the general opinion. If general opinion pursued the subject any further it would conclude that this was one more dismal failure

of our educational system, or lack of system ; that the boys must have been ill-taught, and therefore that our schools and teachers are bad, and must be remodelled, if our boys are to have a chance in competition with Germans and Americans. Yet it is clear that the defects in these boys were the direct and inevitable result of their out-of-school surroundings, which neither schoolmaster nor School Board could in the slightest degree control ; whereas the fact of their having reached the VIth. or ex-VIIth Standard proved that they had received efficient teaching, and profited by it—as far as it went.

It is clear, too, that if the boys had been in a different rank of life they would, unconsciously, have learned to keep their aspirates and negatives in order, without needing to be taught it officially at school. But environment has other modes of counteracting human effort, two of which are worth specifying because they are very common, and disastrously powerful. One is the childish etiquette that forbids talking (or thinking) “shop.” This folly is prevalent at the Universities, and, as is said, in the Army : phrased differently the rule means that a young man having spent a little of his time in an attempt to learn something, must spend all the rest in the attempt to forget it. His success may not be complete, but is always very considerable.

The other counteracting force is the belief, almost universal in England, that knowledge is an evil to be endured, and that, too, only so far as there is a definite prospect of utilising it for some special purpose; no special purpose being generally recognised as adequate, except making money. The greatest obstacle to the work of schools is this belief that the pupil should, if possible, be saved from learning anything which will not visibly and directly "pay." Let no one imagine that this sordid obscurantism bars nothing but Greek and Latin; on the contrary, French, German, Physics, Chemistry, Mathematics are quite as often tabooed because they will never be of any "use to" the boy then under discussion; he must not "waste time" on such unremunerative subjects.

If, however, some examination is to be passed, then the irreducible minimum of the syllabus is adopted as the maximum, which must not be exceeded further than to provide a certain margin of safety. Partly this is one more manifestation of the power of the man with the muck-rake; but much of it is due to admirable motives, which are defeated and misled by sheer ignorance of the capabilities and limitations of schooling.

On the other side, we have the cry that every kind of knowledge shall be "taught in schools," and loud denunciation of the inefficiency of

schools whenever anyone is found, or finds himself, ignorant of something which it would be convenient for him to know. General Gordon, for instance, having recorded how his boots wore out in the Sudan, and his attempts to cobble them proved unsatisfactory, goes on quite seriously to condemn the educational system that had taught him algebra instead of cobbling.

The first theory of schooling, that nothing shall be taught which is not immediately convertible into cash, contradicts the second, that everything must be taught which can ever be needed or desired: therefore they cannot both be true, but both may be false, and in fact, are false, though there are people who seem to hold both at once without apparent discomfort.

But indeed ordinary attempts to investigate educational questions are so unscientific, so unsound in their method, that they can only lead to false conclusions. The question to be answered is, What effect is produced by schooling, or by some particular kind of schooling? The common method of finding an answer is to look at individuals who have gone through the process, and to attribute their various merits or demerits to the schooling they received. The "man in the street" looks at a certain number of his friends and acquaintances and so obtains his answer. More laborious enquirers,

having looked at some German or American schools, then lay down universal propositions about "Germans" or "Americans," and imagine that they have revealed to us the exact effect of German or American educational methods and systems. A chemist would hardly hope to find out the properties of, say, sulphuric acid, by looking, however carefully, at twenty or twenty thousand test-tubes of which he knew only that each contained more or less sulphuric acid, and, for the rest, that no two were quite alike, though each contained an unknown number of other substances unknown, in unknown proportions. In chemistry such a method would be obviously futile, yet it passes muster in the discussion of educational problems. We take certain human beings—whose elements are not less numerous and complex, nor more precisely ascertained, than the contents of our set of test-tubes; to these we add a little schooling of one sort or another, and then suppose we can observe "the result." The result of something, no doubt, but of what? the mere differences between individuals would baffle such crude attempts at observation.

But there is the further consideration of environment, national, social, and individual which is left out entirely. The national environment of German or American schoolboys differs widely from that of English boys. Is it the schooling or the environment that is the cause

of the differences between Englishmen on one side, and Germans or Americans on the other?

Mr Thatcher's letter (quoted on p. 4) shows us the power of social environment, while everyone recognises, though no one can measure, the force of the individual environment; that is to say, of the general bodily health, eyesight, and hearing. But there is still another factor, which equally defies measurement, yet has much effect, and that is the teacher and his teaching. If they are bad, no subject can redeem them; if good, they will achieve something, whatever be the subject taught. But if these factors are of the importance here alleged, if so much depends on the inborn qualities, moral, intellectual, and physical of the pupil, and on the environment in which he lives, not to insist on the effectiveness or otherwise of the teacher—can it be that the subject taught is entitled to the importance commonly assigned to it? In educational discussion it seems to be assumed that something like ninety per cent. of the total effect is caused by this or that subject being chosen for teaching; educational methods and organisation accounting for the rest. Hence this never-ending quest for that philosopher's stone of our day—the right subject to teach. There is no right subject. That is to say, there is no subject which can be taught with satisfactory results if it is counteracted by personal unfitness in the pupil, or by

unfavourable environment, or by incapacity in the teacher. Till each of these receives due attention there is no hope of attaining to anything like a science of education; but instead of patient systematic research into these factors, one by one, we look at the result of their infinitely complex interactions, and imagine we can understand *that*. But if no more scientific method than this is required, then anyone is entitled to form his own opinion, and the right is freely claimed and exercised; some of the opinions carry great weight from the position of those who put them forth. But there is no other reason (if that be one) for supposing that opinions so formed will be correct; indeed it is certain that they will not, except by accident.

Unfortunately even men whose minds have presumably received the full benefit of long training in rigorous scientific method—even they, when they quit their own science and discuss educational questions, seem to leave their scientific minds behind them. They set no example of systematic and exhaustive research, they make no attempt to construct a sound logic, or method of research into these questions, but clamorously vaunt the merits of their own subject—taught of course on their method—as an infallible specific for all educational evils; and to clinch the matter they appeal to public opinion, as if forty million baseless guesses could prove anything.

Engineers do not appeal to public opinion to settle questions of engineering, but to ascertained truths of applied mathematics. Surely we teaching folk should try to ascertain some truths on which we might rely as serenely as the engineers rely on the parallelogram of forces.

It is to be supposed that the construction of anything like such a science will take time, and demand the labour of many investigators who must be prepared for many disappointments—the consequence of the mistakes they will make. The first task should be to observe and classify facts; but we should endeavour to get at our phenomena in their simplest form, which will also be their earliest, for each of them is acted upon by so many causes, that unless we can catch them at a very early stage, their complexity increases so rapidly and continuously as to baffle analysis. I would venture to suggest that a useful classification will be found, as indicated above, in separating from each other (1) the facts of the individual pupil, which might be called personal facts; (2) facts of environment other than (3) facts of schooling, which, of course, are part of the environment, but a part which we shall want to examine separately. The personal facts do not often admit of material modification, but ought to be recognised and considered much more than they now are. Pupils should not

be set to studies for which they are congenitally disqualified. The facts of environment admit of very great modification, but are commonly accepted as immutable or even unimportant, which is very far from true. The facts of schooling will fall into their proper place, and assume their due proportion, if we can get the other two classes observed and arranged with tolerable fulness and accuracy. Adopting this classification I venture to put forward some observations of my own, such as they are.

Of personal facts, those which have most persistently forced themselves on my attention are such as hinder a boy more or less from getting his due share of benefit from being sent to a Secondary school—more especially a Secondary day school.

Ill-health in any degree is a serious hindrance, and may easily become a fatal obstacle to progress; but it is often aggravated, or even produced by ignorance, and in any case lies outside our present scope, except in so far as it is due to causes which can be indicated, and might readily be removed. It will therefore be more convenient to group ill-health among facts of environment.

Defective sight and hearing again are hindrances which often pass unobserved, but can be alleviated by giving the sufferer as convenient a place as possible, and by persuad-

ing him to consult a capable specialist. But the really formidable hindrances, formidable because of the heavy percentage of cases in which they occur, are lack of sufficient intellectual power, and inability or unwillingness to work—roughly called stupidity and idleness; but I think I can discern variations both in stupidity and idleness which might prove to have some importance, and should at any rate be duly noted. First of all, there is much stupidity which is a purely artificial product; the personal fact, idleness, backed by unfavourable environment, can turn a fairly bright boy into a thoroughly stupid adult, whose stupidity will probably increase with his years. That kind of stupidity might conceivably be much lessened, if not abolished. But of natural stupidity, so called, there seem to be at least three varieties, to two of which the term is not properly applicable. First, there is that dulness or slowness of intellect which nothing seems able to stir; in some cases the sufferer makes really noble efforts to combat his defect, but commonly he is indolent in addition. This we may correctly call stupidity.

In the second class we may place those who are often called stupid, both by themselves and by others, but are really not so. Every mind has its limits beyond which it cannot go, though no restraint is felt till the end of

tether is reached; the length of the tether differs widely in individuals, and, in the cases we group under class two, is considerably shorter than the average. Yet in these cases, so long as they keep within their limit, and are not straining on the tether, the mind is often alert and bright, and works with freedom and precision; limited they are—perhaps they never really understand a single proposition of Euclid—still they are not to be classed as stupid, but are quite likely to turn out shrewd and useful men.

The third class consists of those who seem able to think for a moment or two, but to be incapable of any continuous effort, like an engine with an inadequate boiler; so far as can be seen they ought to work well enough, but before they are fairly started they come to a dead stop. Often, no doubt, this is not stupidity in any sense, but mere idleness; still it is certainly not always so, but is due to *bona-fide* exhaustion, coming on abnormally soon. Further, it is a form of weakness which can—and will—be abated or intensified in proportion as it is resisted or not; and discipline from without can contribute to its abatement.

These three conditions then, although commonly lumped together under the one head—stupidity—seem to be essentially different from each other, and to need different treatment. It is the same with idleness; all school-

boys who habitually fail to do their work are dubbed idle, without discrimination of the very different causes in operation which are alike only in the result produced.

There is, firstly, idleness in the true sense; the sheer unwillingness to exert energy in any direction. Sometimes indeed the body apparently demands all the available energy for the conduct of its own vital processes, and finds the whole amount visibly insufficient for its needs.

That condition is not true idleness; but in other cases, where there is no perceptible defect of physique, perhaps very much the reverse, we find the same avoidance of effort, intellectual or physical, though under sufficient stimulus quite exceptional energy will be developed. This is true idleness, against which everyone in some degree needs to struggle, though unfortunately those who have most need struggle least. But the term idleness is used to denote not only defect of energy, but also misdirection of energy into all the various channels of mischief and disorder. It is misleading to call misdirection by the same name as defect.

Again, misdirection may flow from various causes. It may be that the pupil is stupid in our first or second sense, and so really unable to grapple with the work at all; or he may be stupid in the third sense, which will

make the work very difficult, or even practically impossible for him. In the first two cases his energy finding no outlet in the appointed work will expend itself in other directions.

There are, however, too many cases in which this so-called idleness cannot be attributed to any defect either of energy or intelligence. The work is not done because it is not intrinsically interesting to the pupil, nor does he strongly believe in its value as the means to any end that he cares for; very often he strongly disbelieves, and in either case he has not learned that his school work is his business or duty, to be done as a matter of course, whether interesting or not, as the rural postman accomplishes his round, whether it is or is not an inviting day for a twenty mile walk. It will appear that much of this entirely artificial idleness is the outcome of unfavourable environment, and of environment which might be improved without requiring miracles to be wrought.

If my observation of even these few personal facts is correct—and to teachers at any rate it will seem not incorrect, but obvious—there are some plain inferences to be drawn which should govern any attempt to organise education.

Secondary schools should not receive pupils who are incapable of doing the distinctive work of such schools. This, again, is painfully obvious, but I do not recall references to it

in Parliament, nor know of proposals for meeting the very serious difficulty it presents; it is merely ignored, with the result that most Secondary schools contain a considerable percentage of pupils who ought not to be there; who cannot possibly get advantage to themselves, and work incalculable harm to all the rest of the school. For my own part, I should go further, and say that the Secondary school should not receive—or having received should not retain—pupils who from any cause either cannot, or will not, do the work of the school. It is true that the schemes of the Endowed Schools Commission and their successors contain a permissive clause empowering headmasters to establish a system of superannuation, and Governors to raise the standard of examination for admission; but the compulsory financial clauses of their schemes make the thing quite impossible. Indeed it is a marked characteristic of these schemes to undo with one hand what they have seemed to do with the other.

The apparent policy of the Board of Education is to grade schools according to the time the pupils will stay at school; in other words, according to the purse of the parent, which is an important factor, though not perhaps the one which most needs the supervision of a paternal government. But while taking in hand Secondary education, the Board has not

faced the fact that Secondary education is something which a large part of the population is either incapable of receiving or has no desire to receive. Of such incapable or unwilling pupils much the same percentage is furnished by the well-to-do as by any other class, yet the Board's plan does not deal with them, but leaves them, as now, in the ordinary Secondary schools, where they get no good for themselves, but rather harm, while their presence slows down the average rate of progress to about the half of what it should be. For, contrary to what is commonly supposed, it is the able and industrious who are sacrificed to the idle and stupid, not *vice versâ*; and this is natural, for, once a year, at least, there will be an examination, and a report upon it, fraught with serious possibilities for the teacher; now the able and industrious pupils can be largely left to themselves, since they will bring credit to their teacher in almost any case; attention must be and is lavished on the idle and stupid, to prevent their bringing upon him discredit, and possibly ruin. So, for the sake of a few unsatisfactory pupils, the rest of a Form is robbed of half the profit it should gain from its schooling, and what is worse, suffers equally grave moral injury. Not being kept busy, means being taught to dawdle over work; and happy are they who learn nothing worse than dawdling, bad as that is. These evils come directly from

ignoring the personal facts which unfit pupils for Secondary school work.

It was asserted above that the facts of environment are as important as the personal facts, and are even less regarded; that hence springs the common and most misleading custom of using the term education to denote mere schooling, which at most is but a fragment of any one's education. But this is not the end of it, for when it is said that So-and-So "received his education" at such-and-such a school, little effect, if any, is attributed to his school-fellows, but the result is credited to the teaching staff, and particularly to the head-master, if he has been a man of any special note like Arnold or Thring. Sometimes an assistant master gets some degree of recognition, as in the case of the late Bishop Westcott, but the boys get none. In reality the boys, plus the choice of friends made from among them, exercise far more influence, both moral and intellectual, than any master that ever lived. Note, however, the result of leaving them out of our calculations: since education consists wholly of schooling, and schooling consists wholly of what the masters teach, therefore every educational defect is due to some failure in the teaching staff of the school in which the defect was not remedied.

Now teachers are liable to be infected by the current popular delusions of their time;

they do not escape this one, but go about feeling bound at least to do their best to remedy every ascertained educational defect. Moreover, circumstances have made practically all schools into trading concerns—many of them having a hard struggle for bare existence. In an endowed school the headmaster is the manager, and is usually paid by commission on the business he can secure. As a scholastic universal provider he must not admit that there is any article which the establishment cannot supply, or the customer will go elsewhere. Thus the trading instinct reinforces the false ideal created by the wrong inferences directly caused by misuse of the term education. The two forces working together have led teachers and the public also to blunder disastrously: for the public is not to be blamed for demanding all it can get; and it has in effect been invited to go on formulating ever fresh demands, and the teachers have raised no audible protest. On the contrary, they have made enormous efforts to meet all demands as they have arisen. It may be that this silent submission was at first due to the great awakening of the sense of responsibility which marked the last century, and which has effected such a magnificent revolution in many departments of English life. As sinecure offices were being abolished, and the clergy realising that to accept a

benefice was to accept responsibilities beyond what could be enforced by legal process, so schoolmasters began to see that their responsibilities were not limited to setting lessons and thrashing the boys. It is intelligible that they should have submitted in silence to the early demands that they should meet not only their legal, but also their moral, responsibilities. Naturally the demands of the public increased, and so far as they were met, or could be met, by increased efficiency, all was well. That point, however, has long been passed, still without audible protest; or at least without a plain and reasoned statement of what is and what is not possible or desirable. Hence comes the overloading of time tables, which has made our schooling of less value than it was forty years ago. Hence, too, the intellectual pauperising of the boys, and the moral pauperising of their parents.

For the furniture of a well-equipped intellect consists of a solid nucleus of systematised knowledge, full and accurate within its limits, so far as human knowledge is capable of fulness or accuracy.

But round this nucleus, at its largest, is accumulated a far larger mass of general information, as it is called; fragmentary knowledge of many subjects, got from many sources and in many different ways.

To provide the solid nucleus is the function

of schooling and the official teacher, so we will leave it on one side for the present; but schooling cannot supply the general information, nor even an appreciable part of it; the attempt to make it do so has caused much of its own value to be sacrificed without any return, if, indeed, it has not actually lowered the standard of general information by its tendency to choke the natural sources of supply, which are the unofficial agencies.

Nor let any one despise general information of this kind. True, it comes far short of scientific knowledge, and sometimes serves chiefly to tantalise, or even to mislead us; but it is often practically useful in the narrowest sense, and directly helps us to deal with an emergency; also by increasing the feeling of many emergencies with which we could deal if required, when others arise for which we are not previously prepared, it tends to give us more of that courage and resourcefulness which are liable to remain undeveloped amid the extreme specialism of our crowded civilisation.

But general information does far more than this; for it is perhaps the chief ingredient in making the lives of civilised men interesting and enjoyable, by multiplying the points at which the intellect responds to stimulus. And this multiplication not only increases the aggregate of stimulus to which the mind reacts in a given time, but to all appearance increases

the responsive power of each separate point—perhaps by enabling any exhausted point to be rested by the stimulation of others. This responsiveness to stimulus constitutes, in the case of the intellect at any rate, the essential distinction between vigour and decrepitude, youth and senility. Many people exhibit well-marked senility before they are thirty years of age; but though all bodies yield to time, we have many instances in which the intellect has found the secret of perennial youth, never showing a sign of senility—Queen Victoria, for example; but in recorded cases, and probably in all, that has been the happy lot of intellects that have always been active with a wholesome variety in their activities. General information provides ordinary people with this wholesome variety, possibly prolonging their intellectual lives thereby, certainly increasing the amount of life they live per day by widening their interest in their fellows and in the remainder of the universe.

On the other hand, the lack of some scraps of information of this kind adds greatly to the difficulty of teaching: for the teacher cannot create knowledge, but must develop or add to what already exists in the pupil, and so must explore the pupil's mind till he finds some scrap of existing knowledge to afford him a foothold. The degree to which this necessary foothold can be lacking is inconceivable to those who have

never had to prospect for it, and is indeed a source of endless fresh surprises for the most hardened teacher. I have been asked by a boy of sixteen if stones grew; not many months since I found here in Bristol a boy of about the same age who did not know what the deck of a ship was; and still more recently, a whole Form (of junior boys) did not know that the trees in and about their playgrounds were not all of one kind.

These examples are not exceptional, but typical, and no doubt any observant teacher could adduce numbers of similar instances from his own experience.

To deal with such cases the schools have invented various plausible devices, such as object lessons, elaborately selected and illustrated readers, holiday tasks, and "general knowledge papers," but all has resulted, and inevitably must result, as I venture to think, in ever-increasing ill-success. Supposing however that what we provisionally called the unofficial agencies could be induced to co-operate, and utilise their seventy per cent. of the schoolboy's waking hours, let us consider what means and opportunities they possess of succeeding where the school fails. What would be a favourable environment for a child of good average capacity? What would be the effect of such environment, and also what would be the effect of its absence?

It will be seen why our classification of educational agencies could only be provisional, when it appears that in the unofficial class the first place, beyond all dispute, must be given to the mother, who again is of all agents the most official and most responsible.

Surely a terrible confession of unfitness for the office and its responsibility is implied by the extent to which the care of children is deputed—without misgiving—to nurses; is the housemaid left to choose a new wall-paper, or a carpet for the drawing-room? Yet the mother, or her vicegerent, receives the child before the formation of any habit, physical, moral, or intellectual; but before the child leaves the nursery it will have formed habits of all three kinds which will be factors in shaping its future life; and whether these habits shall be good or bad depends on the mother or nurse. Restricting our enquiry chiefly to the intellectual aspect of these habits let us consider what is or can be done or left undone in nursery days.

From the first moment at which an attempt is made—or ought to be made—to teach a child anything at all, the difference between good and bad teaching will appear. If it be good, it will develop the faculties of the child, laying the foundation of valuable habits, such as the habit of self-help—not depending on the mother or nurse for every little thing; the habit of taking interest in everything round about, whether

natural phenomena or human action ; if happily there are younger children in the nursery, the sense of responsibility to weaker members of the community should have begun to germinate.

But these habits, translated into more sonorous language, are originality, observation, and Christian charity. It seems to be supposed that these things are so august and abstruse that they must be taught from the beginning at the Universities, or in the higher Forms of Secondary schools. Alas ! if the foundation has not been laid long before that stage is reached, little can be done then ; and for this reason, if good habits have not been acquired, bad ones have inevitably taken their place, and the higher Form or the University does not start with a clean slate ; the bad habit must be eradicated before the good one can begin to be implanted. How difficult it is to eradicate any habit, good or bad, is plain to the least observant. Of the thousands who know that an improved handwriting would be to their own substantial interest, how many persons ever make the improvement, simple as it is ?

The average of nursery training is far from high, and in consequence many children come to school very helpless ; accustomed to have everything done for them, they cannot take care of their own books or other properties ; they do not even speak articulately, and too often their powers of being interested have been

rather killed off than fostered, so that they do not observe, still less reflect on, their surroundings; they seldom "pick up" bits of information, nor indeed do they know anything except what has been driven into them in the form of lessons; but lesson-knowledge, when unaccompanied by anything else, is a dreary lifeless thing, very scanty and of little value. Sometimes the parents, conscious that there has been no mental growth, make bad worse by keeping a boy at home in the same deadening conditions till he is twelve or even fourteen years old, stating, in explanation, that he was "too young for a big school," and that "he is backward." They do not know the truth, that this backwardness is an artificial thing, which their affection, unguided by knowledge, has produced at a considerable cost both of money and of trouble; they have, indeed, "atrophied" the child's intelligence and his character as successfully as they would have atrophied his limbs, if they had kept him from his birth lying on his back swathed in bandages so that he could not move. Again, the backwardness that the parents see and admit is only the smallest part of the injury inflicted on the child; his lack of lesson-knowledge is a loss which should not be under-rated; but far worse is the *habit* of apathy, of blankness and emptiness of mind, and the great difficulty which his maimed faculties find in moving at all. When the teacher takes in hand such a case as this, he

is like an engine trying to drag a train through a snow-drift. If it is answered that this is an extreme case, I admit it—yet it is not worse than I have seen—and further, the children of all even moderately well-to-do people are injured in this way, some more, some less. For when we set up nurseries and nurses, we remove the children from Nature's teaching, because we think her methods too severe; but we lose her teaching along with her severities, and unless we make very strenuous and very carefully devised efforts to supply the teaching in other ways, mischief must follow, and in fact does follow with the majority of children, because good teaching is as much needed, and not so often found, in the nursery as in the class-room. Teaching a little child always tends to be put off, because on each particular occasion as it arises, it requires much less time and trouble to do the thing than to teach the child how to do it. When at last an attempt is made to teach, for example, how to put on a pair of shoes—probably the child will only be *shown* how over and over again till he can at last do it—mechanically; that, however, is not teaching at all, but *cramming*; a monkey could be taught it in the same way, and possibly in less time. *Teaching* would lead the child to observe that his two feet differed in shape; that the shoes had a corresponding difference, and so on; it would, in fact, exercise not only his power of

mechanical imitation, but also his powers of observation and reflection; or to use simpler words, it would set him on to put this and that together for himself.

This instance of putting on shoes is purposely chosen as being at first sight utterly unimportant; but, as we now see, it affords an opportunity to be used or wasted. The nursery affords a multitude of such opportunities which any parent who chooses can readily call to mind. If they are turned to account, the child's mind grows and gains strength no less than his body, and that without any schooling, which indeed is better away from nursery days. Nor is it only the child's own business which alone or chiefly offers these opportunities; if the mind is awake, the child will not willingly allow a workman to be about the house without following him round to see what he is doing, and how, and why. Too often, however, this is not allowed; the mind is hunted back into its prison, there to practise the deadly art of stifling its own activities, its thirst for knowledge and its power of taking interest in the world around.

Repression is a large and important part of all good training, but it requires to be guided by wisdom, by a careful consideration of *what* is being repressed in each case, and the tendency of such repression; while the motive should be a regard for the welfare of the child, not the momentary convenience or caprice of the adult

who happens to be wielding the power of repression at the time.

Unwise repression is a great factor in producing artificial stupidity and artificial idleness; some children it sends to school so completely repressed that they can sit through a whole lesson without a symptom of disorder, or even fidget, and equally without attending. Others, less fully benumbed, but taught to stifle the beginning of thought and enquiry, cannot bring themselves to attend, nor yet to be quiet; they are troublesome and constantly under punishment, because, before they escaped from the nursery, they acquired, and cannot now get rid of, the habit of taking no intelligent interest in their world; they are victims of such maxims as these—children should be seen and not heard; children should not ask questions; children must not touch; whereas, children ought to talk, learning to talk articulately, without shouting, correctly, and (for their age) sensibly; they ought to ask questions, learning to ask only such as they really want answered; and when they ask they should be answered *civilly*; if they ask what should not be answered, let them be told so; if you do not know the answer, confess your ignorance frankly, but never snub an honest question, for that is maiming the child's mind by making the desire for knowledge seem to him a wrong thing leading to unpleasant consequences. The same principle

holds with regard to touching or meddling; some things in every house are too costly or too dangerous for meddling to be tolerated; but the time is coming when the child will have to handle things both costly and dangerous, if only lighting or turning out the gas; and the later the day when careful handling is required of him, the more trouble it will take to teach him, because, in the meanwhile, he has not been allowed to handle anything that needed care; so he has been acquiring the habit of rough and careless handling, which he must, if possible, unlearn, though it is not likely that he will. But, above all, it should be remembered that this meddling is not an outcome of inborn depravity, but is honest investigation—a first step in original research. When we have to repress it we should go to work very cautiously, trying to avoid putting any needless check on the tendency to seek knowledge; the highest tendencies are ever the frailest, and few are frailer than the desire for knowledge and love of investigation; they can be and habitually are killed off in nursery days, as spring frosts attack the tender blossoms of the orchard, and destroy the year's hope of fruit in a single night. On the other hand, very striking results follow from a favourable environment in nursery days, when the child has not been imprisoned in the nursery, but has been the companion of the parents, and when the adults of the family,

possessing some knowledge of one kind or other, have not grudged the expenditure of a little time and trouble in imparting it by answering questions, or even unawares (when they are people who are interested in things of the mind), by their conversation with each other in the child's hearing. Let this serve to illustrate the importance of the nursery environment.¹ It was asserted above that the unofficial agencies, as we must continue to call them for lack of a better name, enjoyed certain facilities for their teaching which are denied to the official agents.

Chief among these is the fact that they can, and mostly do, begin each lesson with the assent, if not actually on the invitation of the pupil; if wise, they will not insist much on continuing the instruction when the first interest has died away. These short impromptu lessons can be given at any time, and so the interest is caught just at the critical moment, and more effect can be produced in a few minutes, when the subject

¹ An English lady newly landed in America, writes thus of an American family: "Two small daughters of twelve, twins, were a perpetual source of joy and surprise to us with their assurance—'cheek' it was not, for they were quite unconscious of anything unusual in their ways—for that matter, there was nothing unusual for Americans; but they were quite prepared *to do the talking for the table*."

On this side of the Atlantic those children would be generally regarded as nuisances, but as their elders managed to tolerate them, they were gaining very valuable practice—in learning how to talk in such a way that their elders might not find them intolerable. Power of thought and expression must both gain by the process.

engrosses the child's willing attention, than by an hour's teaching, when the learner is reluctant and gives only that minimum of attention which cannot be avoided. The official teacher must appoint a fixed hour of a fixed day on which he will deal with a fixed subject, whether any member of the class is interested in it or not; and naturally some of the class refuse to be interested at all, or at any rate at that particular time; so, however excellent may be the seed sown, little of it falls on good ground. The value of set official teaching must be dealt with among facts of schooling; but as means of imparting knowledge it must clearly be inferior in this important point to the informal solicited teaching of capable parents and others with whom the child is in contact. The drawback of knowledge, thus informally acquired, lies in its being only general information, lacking in exact detail, and in correlation; it is desultory, and rarely justifies us in placing full confidence in it. But because its acquisition is entirely pleasant, and because again the unofficial agencies, as was pointed out above, have much more time available, the bulk and variety of any one's general information will largely exceed the bulk and variety of his systematic and trustworthy knowledge. It is further a great benefit to the child to show him that knowledge is a pleasant possession, and may be pleasantly acquired.

A little later, when the child has learned to

read more or less, his environment will greatly affect his immediate progress, and his whole future life. If he takes to reading on his own account, if he reads because on each occasion it is what he chooses to do, then several good things will accrue to him; he will shortly read with an ease and rapidity not otherwise attainable; he is using the best (perhaps the only) means of mastering the frantic perversities of English spelling. But beyond this, he is learning to make books his companions and friends, and so entering into a whole new and illimitable world of delight and knowledge. Now a few children can hardly be kept from books, others cannot be allured to them, but most children will or will not take to books according to their environment. They will not take to books if they see that their elders practically never read; nor again if they have not ready access to books which they can read spontaneously and with pleasure. A nursery bookcase is a most useful educational instrument, especially if kept free from those fraudulent productions which try (and fail) to take advantage of the child by smuggling in instruction or edification under a cloak of amusement. A child once deceived in that way will long be suspicious of books.

Still later, when the child has reached the full dignity of a schoolboy, the facts of environment will chiefly determine his rate of

progress, and (what is far more important) the educational benefit he is to gain from his schooling. For these depend on the attitude he assumes towards his appointed work, while his attitude will depend almost wholly on his surroundings, at school and at home. Hence the importance of the choice of companions, which, however, cannot be fully controlled by parents or teachers. But much will also depend on home influences, of which the weakest perhaps is home preaching. If a boy is to get the utmost from his schooling he must acquire the habit of regarding it as a duty, which may from time to time be pleasant, or irksome, or indifferent, but which under all circumstances must be done in spite of difficulties or distractions. If a boy has been trained, say from eight to seventeen years of age, in that habit, he will have learned the greatest lessons in life, and though he may be very dull, he will always be valuable. But whether he is to acquire the habit or not depends very little on efforts to explain to him the underlying principles of conduct; indeed I believe such attempted explanations oftener do harm than good. The boy's mental attitude will reflect very accurately the mental attitude of his parents, if they agree with each other; if they differ, the boy will naturally be attracted by the one which is most favourable to his own immediate ease and pleasure. Thus

a boy will not learn to regard his school work as the most important thing in his life when he finds that it is put aside for other things which he knows to be unimportant. If any little social function at home, or to which he may be invited, is held to excuse an evening's work, he will correctly infer that his parents attach very little importance to evening work; then why should he attach more? and if he leaves his work on Monday at his parents' wish, why not on Tuesday at his own?

If on Tuesday the parents—as is likely enough—rebuke his idleness, will he not interpret Tuesday's lecture by the light of Monday's allowed idleness, and run some risk of doubting his parents' sincerity?

Similarly, regular attendance will hardly appear a very urgent duty to a boy who is kept away from school on grounds that he knows would never keep his father from business for an hour. When these conditions prevail, and parental lectures, as said, are neutralised by the actual facts which the boy observes, lectures from the teacher, or exhortations, or arguments, or persuasions, will still more surely fail of effect; and the day is long past when the teacher could rule by terror. Meanwhile his schooling is all the business a boy has, and perhaps his only consecutive course of duty; if then he is learning that it may quite well give way to mere amusement

or other trivial considerations, it is obvious that he will make very little progress in his schooling, and, at the same time, he is getting the worst possible "education," for he is learning exactly those habits which will most tend to bar his success in life—the habit of putting ease and pleasure before business and duty.

Unfortunately, the mental attitude of parents described above is one very usually found, and the question arises why do parents undervalue schooling? and that, too, when they pay for it? There seem to be several causes which tend to produce this unfortunate result; one is the confusion between education and schooling, which leads to an expectation that the school can do, and ought to do, the whole work of educating the pupil. As this expectation cannot be fulfilled, and its non-fulfilment is frequent and obvious, it is only natural that disappointment should lead its victims to regard schooling with distrust and even dislike.

Another source of disappointment is the habit of judging the value of schooling, first by the amount of information which the pupil brings away with him (and commonly forgets pretty rapidly) and, secondly, by the direct cash value of that information.

It is painfully common knowledge that under the most favourable circumstances the best of pupil brings away very little information, and in the greater number of cases gets no visible

and direct payment for it, whatever it is, except for those purely elementary branches which have become almost a necessary of life in civilised countries.

Unfortunately it is not common knowledge that the information acquired is the least valuable part of good schooling; while no sort of attainments beyond the bare "three R's" can ever be directly remunerative to the majority of their possessors. Hence boys constantly hear their elders, possibly their parents, saying that one subject or another "will never be of any use" to them; is it likely that they will put their hearts into their work after that?

But perhaps the chief cause of the indifference with which so many parents seem to regard schooling is to be found in the perversity of the commercial world where four-fifths of the boys in a Secondary day school will have to find their openings. Business men clamour loudly and unceasingly for better educated employés; they will subscribe to found places of education; they will agitate, promote legislation, hold congresses and conferences, anything in fact except the one thing which would secure the object of their professed desires, and without which all else is useless; they will not set up an "effective demand" for the commodity, but rather put obstacles in the way of its being supplied even by accident. They may

admit, or even vitally believe, that character rather than intellect rules the world; they do not understand that success in school, as elsewhere, is much more a moral than an intellectual test; still less do they understand that intellectual training is of any value, unless it has consisted in acquiring the special scraps of information used in the routine of their own business. Consequently they set no value on school success, but rather snub it, and so boys and parents alike suppose that there is no commercial motive for achieving school success, which is therefore rarely achieved or desired by boys destined for commercial life.

Another force operating with considerable effect in the same unfortunate direction is the universal nepotism which rules the commercial world. Those whom it aggrieves very probably over-estimate its extent; but there is enough of it to produce much of that dreary hopelessness which is the worst enemy of improvement. All these things tend to indifference in parents, which reproduces itself in their boys; and so the school is regarded not as a place of business, still less of duty, but as a sort of *crèche* for overgrown babies, where they can be kept out of their parents' way when they get beyond the control of the earlier nursery-prison.

Many parents, feeling that somehow the home environment is proving unsatisfactory, send their children away to boarding-schools, which may

well be a good remedy if the evils to be escaped are irregularity and disorder, and lack of adequate discipline, though it is possible to conceive of a far better remedy; yet a boy coming from an ill-regulated home will gain by the clockwork regularity and unsleeping discipline of a good boarding-house. But somehow the best of the great boarding-schools turn out too high a percentage of failures; young men who seem to be useless for any forthcoming piece of the world's work. Yet it ought not to surprise us. When a boy goes to a boarding-school we have a right to expect that he will have all the advantages of living by strict rule, for about three-quarters of each year; only, can his net gain be great if for the years before he went to his school he was learning an opposite set of habits, to which, moreover, during his holidays he reverts? But while this makes it difficult for the boarding-school not to fail often, even on the disciplinary side—just as prison discipline fails—on the intellectual side it has still less chance of success. For the great and inevitable defect of the boarding-school, in comparison with good home environment, is its lack of variety, and consequently of mental stimulus; for, although a boarding-school may bring together in one society many hundreds of boys, it does not thereby gain a correspondingly increased common stock of ideas; the members of the society are practically all of one social

class, and in one stage of development, as they are of one sex; so they evolve a code and a public opinion of their own, which are naturally accepted with hearty unanimity, and so possess overwhelming strength and authority; if any rebellion is attempted, it finds few adherents, and is put down with unhesitating firmness. That is all excellent discipline, but it supports a public opinion which is out of touch with the views of the rest of the race, which views therefore—when in evidence at all—are neither liked nor respected. An additional cause of this dislike and distrust of adult opinion is that it mostly comes to the boys, not as a living principle seen in actual operation, and really governing the conduct of real people, but in the form of admonitions, whether from home or from a master: these admonitions are statements of principles by which somebody thinks that conduct is governed, or rather perhaps thinks it ought to be governed. Any such statement must be very imperfect at best, when not positively erroneous; it will omit points which the boy thinks all-important, and insist on others that strike him as irrelevant; in any case it will resemble mere stuffed skins of dead creatures, while the boy's own opinion is based on his direct observation of the vivid life all around him, of which he does not perceive the extremely narrow limits; still less does he

realise how far his school life differs from the ordinary life of the world. These artificial conditions and limited outlook are indeed aimed at in day schools, but cannot be so fully achieved as in the case of boarders. The boarding-school assumes entire control of its boys, and therewith entire responsibility; therefore the management must be governed by two chief pre-occupations, to keep the boys out of mischief and to keep them in health, more particularly to keep them free from infectious sickness. Hence it is necessary to retain them for the most part on the school premises, and to fill up all their leisure time with some occupation that they will not dislike; in any case all their time must be strictly accounted for. That is why an importance that seems so excessive is attached to school games, which, after all, do largely achieve the two great, but negative objects named above, and are besides a useful discipline; only—they do very little for intellectual development. Now it is only a minority of boys—about one in four—that is capable of profiting very much, either by books or laboratories; the rest must learn mainly by practical experience, which should therefore be as extensive and varied as possible. But instead of gaining such wide experience, boarders live a cloistered life, secluded and protected as far as is possible from the sources of infection, physical or moral, which are so

numerous in a wicked and insanitary world. This sheltered and athletic environment has its own advantages; but they have to be paid for; it is conceivable that a New York boy of eleven or twelve may surpass a young man of nineteen, fresh from an English public school, in the kind of knowledge that is useful in commercial life; but his advantage—which also has to be paid for—is not remotely due to any difference in the teaching either boy gets in school, but to the environment of his leisure time.

In the case of the day boy, his environment has made him comparatively familiar with the habits and ways of thinking of people who are not all boys like himself, and although a boy cannot escape the tendency to adopt a boy's point of view, still, if he lives at home, the special ideas of his age and sex are frequently challenged and contradicted by the different ideas of the people about him, and so do not acquire undisputed authority, as they must in the case of a majority of boarders.¹

¹ The Bishop of Hereford (Dr Percival) in his presidential address to the Educational Section of the British Association at Cambridge, said as follows:

“The day school, as compared with the boarding-school, had not hitherto received the attention it deserved. The boarding-school was admitted to excel in turning out strong, self-reliant, sociable, practical men of affairs, men who had learnt by early experience not to think or make too much of small injustices, to rough it, if need be, with equanimity and cheerfulness, and to count it a man's part to endure hardness in a manly spirit. It

If the foregoing observations are correct, they suggest some practical conclusions, viz.:

(1) Education, as distinct from instruction, requires that the environment shall *contribute even more than the schooling*, and that not only to the formation of character, but also to the development of the intellect.

(2) When the environment contributes little to intellectual development, the results of instruction will be correspondingly meagre.

(3) A satisfactory environment is not and cannot be provided by the school alone, because the school environment must lack variety, and freedom for spontaneous development along self-chosen lines.

(4) These two essential elements are not unattainable in the home environment, though of course they may be more or less deficient.

Coming now to schooling, we find that the ground is cleared to some extent. Since the school cannot do the whole work of education, nor even of imparting knowledge; since indeed it is not even the chief agent in the work—

was a fine type of character which was thus produced, at its best; but the best was not always seen in the result, and the system too often produced an undue deference to public opinion, a spirit of moral compromise, and a loss of moral enthusiasm. *As he looked back over the school days of his own pupils, he felt that those of them had, on the whole, the best education who grew up as day boys in good homes at Clifton College. There they enjoyed all the advantages of the cultivated home, and at the same time, through the arrangements made for them, all the best elements in the life of a great boarding-school.*—*Times*, 19th August 1904.

what is the more limited function that properly belongs to it? First of all, it must realise its limits, and not spoil its whole work—as is largely done at present—by attempting far more than can be adequately performed. A selection must be made among a number of possibilities, each of which has strong claims.

But on what principle is the selection to be made? The answer comes pat enough, “Teach the pupil what will be useful to him in after life.” But this does not much advance the matter, for we have still to determine, firstly, the object which the school should help the pupil to attain, and, secondly, the kind of help which it should afford. Again, common opinion has its answer ready: teach him to earn his living; teach him something that somebody will pay him for knowing. That principle carries us a little way; reading, writing and a certain amount of arithmetic are certainly covered by it. But, when we proceed to the next step, it is not so clear.

If a technical school teaches assaying, no one is likely to take the course who does not expect to make assaying his means of livelihood. Yet it can very rarely happen that the whole of the class does in fact ultimately achieve this result, owing to the various chances and mischances of life. But in an ordinary Secondary school there is not even an approach to the similarity of conditions which brings together the pupils of

an assaying class. In fact—except for passing examinations—no subject that is or could be taught in the Secondary (as distinct from the Preparatory or Elementary) school “will ever be of any use to” four out of five of those that are set to learn it. That is to say not more than one in five—or more likely one in twenty—will hereafter be found visibly turning that particular subject to directly profitable account in his daily work.

At the census of 1901 the City of Bristol contained nearly 85,000 males, aged between twenty and sixty-five. What percentage of them would be earning money by the direct use of any *one* of the subjects taught or teachable in a Secondary school? and what is the probability that any one boy taken at hazard, who is now learning that subject at school, will ever find a place in the very limited number of those who make money out of it directly?

Nothing then, that the Secondary school can teach, is worth teaching for the sake of its direct and visible “earning-capacity”; because no school subject can possess earning-capacity for the overwhelming majority of those to whom it is taught. It is almost a misfortune that there are any instances to the contrary, few as they are, for they appeal to the gambling instinct, and blind us to the real, but indirect and less obvious, benefits of genuine study and good teaching; they stimulate our natural

impatience of laborious striving after a distant object, and so tend to create a demand for cramming instead of teaching, because undoubtedly cramming can in less time produce a greater visible output—such as it is.

It may perhaps be asked if the Secondary school cannot offer a boy anything that will ever be of any use to him; what can it do, and why does it exist?

It can do, and ought to do several useful things which I venture to think it largely fails to do, because all concerned, parents and pupils, educational authorities and teachers, have allowed themselves to be misled into chasing this will o' the wisp of direct earning-capacity. Naturally they have not caught the will o' the wisp, and repeated disappointment has driven many parents and more boys to despair, and to entire contempt for school work; teachers are learning the truth by degrees and in a fragmentary fashion; authorities seem to remain sanguine. What schooling can do is to give the pupil some practice in certain habits, part moral, and part intellectual, which are essential to the achievement of any useful work, be it great or small.

First among these, and in value perhaps equal to all the rest taken together, comes the habit of Duty—of putting business before pleasure—regarding business or duty as something to be done in spite of even great difficulties, while

pleasures and amusements may be accepted joyfully when they do not interfere with business, but must not be made objects of serious pursuit, nor claimed and demanded as a right. For teaching this priceless lesson before it is too late we possess no better piece of machinery than the fixed routine of a strictly disciplined school; but it is appalling to see how little its importance is understood by many parents, who by a single weak concession, or even by a single unwise remark, can destroy the fruits of many days of discipline. The penalty is inevitable, and in years to come will have to be paid—to the uttermost farthing—by their child.

Next, the school should teach the difference between ignorance and knowledge; and that knowledge on which it is safe to rely must begin with minute and accurate observation, followed by accurate recollection, and afterwards by sound reasoning; in other words it should furnish a well-devised course of gymnastics for the faculties of observation, memory and logic. In the early stages the first two should be the most prominent, because they are most natural to young children, and therefore less exhausting. With an intelligent child in your hands it is easy and delightful to set the reasoning faculty in active operation, but the danger of over-pressure is very great, and should be guarded against most watchfully. Meantime, minutely accurate

observation is called for in learning to distinguish the letters of the alphabet, and still more in mastering the vagaries of our spelling, which will also exercise the memory; but beyond this there should be the learning of fine literature by heart, with insistence on absolute accuracy. This comes easily to nearly all children, but if the faculty is not exercised betimes, it is seriously enfeebled. Beyond the strengthening of the memory, there is the practice in exactness and care in the use of words, and greater familiarity with turns of phrase and with constructions which are not often heard in common talk. There are other advantages which may be left unenumerated here; but while protesting strongly against the unwise clamour that denounces exercise of the memory, as if a good memory were not a very valuable possession, let me enter a caveat against requiring such pains to be spent on second or third rate stuff. There is fine literature that young boys can understand, but what is thoroughly learned at that age will last a lifetime; so the contemporaries of our late Queen, who were made to learn quantities of Shakespeare and Milton, were glad of it in later life. Still we may suppose it was a serious infliction on their childhood; and it might have been avoided without loss by care in the selection of passages. In any case the practice of strict accuracy is both a moral and an intellectual virtue, which

can and should be required from the earliest stage.

But, further, the school ought to aim at carrying the pupil so far in some one subject at least, that his acquaintance with that subject may be capable of serving him as a standard of comparison, by which to estimate his own ignorance of that subject, and still more, of other things on which he has not similarly expended long, laborious and systematic study. It is indeed quite possible that the standard will never be so employed ; but there does not seem to be any better method of preventing “a little learning,” and mere general information also, from becoming that “dangerous thing” which it really is when its possessor fails to realise its littleness. Now it is beyond dispute that the enormous majority of the pupils in Secondary schools entirely fail to carry any subject whatever to this pitch, or near it.

This deplorable result is due to several causes :

1st.—To the overloading of the time table.

2nd.—To lack of faith in the value of what is taught.

3rd.—To the herding together in the same schools of fit and unfit—to the detriment of both.

(1) The overloading of the time table has reached the pitch at which the subjects probably become mutually destructive. Certainly no

adult student would attempt concurrently half the variety of studies imposed on a boy of fourteen or fifteen; and it can hardly be doubtful that from this point of view only, even if it stood alone, there is an excessive diversity of subjects; two or more foreign languages, living or dead; mathematics (which can hardly be called one subject), and at least one branch of natural science, with a few trifles such as history, English grammar, and literature, geography, singing, drawing, and theology, dogmatic or undogmatic, as it may happen; is the list long enough? Not if we would really keep abreast of the times; we still need elocution, physical drill, manual training and carpentry; nor ought we to omit temperance, hygiene, patriotism, and the duties of the citizen.

Nothing but failure could possibly result from such a grotesque excess; but if it is to be abated we must discover some principles on which to base a rational selection. At present each separate item in the list has its faction at its back, struggling for victory over the other factions, but not caring much to search for the mere truth of the matter. A further effect of our overloaded time tables is to require hurry instead of thoroughness, and cram instead of teaching. What then is cram, and what is teaching? Teaching aims at enabling the pupil to make more rapid progress by taking

advantage of the labour of others. It economises his labour by warning him off wrong paths, and pointing out the right one, and thereby it increases the visible output of acquired knowledge.

So far, then, it is identical with cram, and perhaps inferior to it; perhaps, for though the crammed pupil will possess more acquired knowledge than the taught pupil immediately on the completion of the two processes, it is probable that in a short time the relation will be inverted, for it is the nature of cram to pass away very rapidly and leave not a wrack behind. But the acquired knowledge resulting from even good teaching also tends to pass away, though less rapidly. But *pari passu* with the acquisition of more or less fleeting knowledge goes on the formation of habits, which are permanent, and which, with ever-increasing force, govern conduct. The point in which cram differs from teaching, is that cram takes no account of the habits which are being formed in the pupil, while teaching regards them as more important than the knowledge acquired. Cram concentrates attention on the acquisition of the maximum of knowledge in the minimum time: therefore it must economise the labour of the pupil to the utmost, never letting him waste his time in doing anything that teacher or text-book can do for him more rapidly. He has not time to spare for discovering and correcting his own

mistakes, or for struggling with a difficulty of which the solution can be furnished in a few seconds or minutes.

This method is quite a good one for acquiring temporary possession of a strictly specified body of information, which is to be displayed at a date which also is strictly specified long in advance. But meanwhile the pupil has been acquiring a number of disastrous habits. He has not been allowed to waste his time on observing for himself, or on thinking anything out for himself, still less on facing a real difficulty, and at the cost perhaps of many failures, conquering it for himself.

A pupil thus trained, so far as he depends on his training, and is not saved by exceptional gifts of nature, can never become anything better than a mere drudge; he can indeed more or less industriously carry out routine operations devised by someone else, but the ever-changing conditions of life will baffle him, and a trivial difficulty will stop him entirely. For the pauper habit—the habit of dependence, and of shirking labour, affects the brain quite as easily as the muscles; it is very easy to form, and very hard to shake off. Cramming is wholesale indiscriminate alms-giving, and a powerful agent for the production of intellectual pauperism. In favourable instances it may train the pupil to a mechanical and perverted industry, as the professional beggar is trained to

both industry and skill in his calling ; but the calling is not useful to society.

Teaching is also a form of help given to the pupil ; it is charity ; but it is discriminating charity. A good teacher realises the risk of pauperising the pupils' intellect ; indeed it is more than a risk, it is a certainty that every time we receive help we become proportionately less disposed to make an effort for ourselves ; therefore the constant aim of the good teacher is so to give the necessary help as to call forth the maximum of successful effort on the part of the pupil ; and further, to enable the pupil to make use of the work of past generations, and by means of his acquired knowledge to gain broader sympathies and a wider horizon than would otherwise be possible ; this we believe compensates the pupil for the harm inflicted on him by giving him help.

Teaching, however, is subject to the unceasing pressure of forces that tend to pervert it into cram : First, the desire of all concerned for visible quick returns, a desire which if not held in check over-reaches itself ; and, secondly, the pupil's natural inclination to accept the help, but withhold his own effort, which alone can save the help from being injurious. It is among the functions of school discipline to secure that the pupil shall not withhold his co-operation ; but obviously, no discipline can extort from a pupil efforts of which he is not

capable; and although it may cope with mere indifference, it will not achieve anything satisfactory with a pupil who is firmly convinced that he is being asked for an effort that will "never be of any use" to him.

These two classes of unfit pupils are to be found well represented in probably almost all Secondary day schools; of the two, the sordid do more harm than the stupid, for they more easily exercise influence over their companions than does a recognised dunce; so there ensues an increase in that class of whom it is said in reports "could do well if he chose"; there is the waste of time and labour expended in the struggle to make the "tail" of the Form pass muster somehow, and worst of all, the capable and willing are kept marking time, and their visible result of acquired knowledge is reduced by a full half; indeed an experiment that I was able to try in the autumn of 1903 suggests that the reduction is considerably greater than I have stated.

The crudest form of Socialism, that which proposes barely to take away his riches from the rich man, would at any rate have the riches in hand for its own purposes: so many acres would still be so many acres; but our educational Socialism robs the rich intellects remorselessly without enriching anyone; on the contrary, we are all of us the poorer because our community is impoverished. No possible

scheme for "reorganising education," as it is called, can achieve anything worth a tithe of what it will cost, unless, it begins by releasing the brakes before the train has to start. Of course it is the social difficulty that blocks the way; fancy a local school rejecting the children of local magnates because they were *not fit* to be admitted—yet that is the real key of the position, and unless we capture or turn it, we lose the battle, so far as victory depends on schooling.

We cannot hope to eradicate sordidness from the aims of the Philistine; but a step would be gained if he could be brought to see that his sordid educational aims cannot be realised; that the direct gain of schooling is and must be infinitesimal, but that the indirect gain, though usually ignored, is appreciable even here and now, and might be enormously increased if he did not block the path by his insistence on multifarious cram, instead of sound teaching restricted to a necessarily limited area. He would also have to learn that it is never possible to predict in any individual case that success will attend even the wisest efforts; all that can be said is that certain results tend to follow from conditions such as we are trying to produce; but the pupil must remain exposed to the action of many other forces not controllable by us, perhaps not even known to us, yet capable of neutralising all that we can do.

So much then, would seem to follow fairly from a rough attempt to discriminate between schooling and other factors which are involved in the education of a man, and from a tentative classification of the forces at work. A more difficult task is before us when we come to enquire what is the precise work which any one of these forces does, or rather tends to do. Yet until something is achieved in that direction, the choice of subjects for school study must remain as it now is, a matter of haphazard, governed by idle fancies, and changing fashions.

I had once surmised that possibly statistics might reveal important facts about the effect of different subjects ; but on reflection I doubt the possibility of compiling them with any accuracy. Life insurance rests entirely on statistics which have fixed the expectation of life with approximate certainty. But actuaries have at any rate one fixed unit to work upon ; for their purposes one death equals one death exactly ; but in education we have no such unit ; the pupil and the teacher are variable quantities ; and in consequence even the subject is not of fixed value ; a book of Euclid to be got through in a definite time, as taught by A is not equal to the same thing if taught by B ; nor is it the same thing if taught to C as if to D. Nor have we any single simple result to look out for as the actuary has, who moreover goes on many millions of accurately recorded instances,

and is not yet satisfied with the closeness of his results. His results too are correct only when taken almost as widely as his premises; he can tell me that of a million men of my age so many will die this year, so many next, and so on, but he can offer no opinion whether I myself shall live to be ninety or die before I can end this sentence. What I would suggest that we might do is to ascertain that the study of a given subject tends (if not prevented) to produce certain habits; what habits these are we may be able to discover by investigation of the individual acts which the study in question requires us to perform; we should then attempt to determine the precise value of the habit which the repetition of those acts is likely to produce. Hence the questions which I suppose should receive a rather full answer as a preliminary to the rational selection of subjects are something of this sort: (1) What are we really doing when we study the subject under consideration? (2) What else is left undone? (3) What habits of mind will tend to be formed by such use and disuse of faculties? (4) Is the particular class of phenomena proposed for study likely to come before us much or little in the life which we shall probably lead? (5) Is it governed by laws which can be readily discerned in other classes of phenomena? (6) Are the methods by which it must be studied of any wide applicability to other matter; or to

put these two last questions in a different shape, —will the study give us a knowledge of principles, and develop in us an intellectual dexterity, which can be applied to other subjects with reasonable facility?

These are some of the questions to be answered about any study if we would determine its indirect or gymnastic value; doubtless there will also be other questions in addition to those suggested here; but to find the answers, and to determine correctly the gymnastic value of our proposed subjects is of very high importance, if it was rightly argued above that direct gain from any study can never be counted upon, and must indeed always be so rare that it may be left out of the account altogether, at least in the case of a Secondary school working under ordinary conditions.

It is true that answers to one or other of our questions are sometimes offered, mostly as *obiter dicta*, which when correct enough as far as they go, yet naturally take only partial account of one or two phenomena, and those not always the most important; so that we do not get much help from them. What we need is a thorough and very cautious investigation, which in the outset might be conducted along the lines suggested by the series of questions propounded above; but to carry it through will presumably require the combined

efforts, and mutual criticism, of a large number of investigators. I have not the leisure, even if I had the ability, to do more than proclaim the need for research, and to suggest with much diffidence what strikes me as a hopeful method. I venture to add some criticisms on current opinions, which may serve to explain why they seem unsatisfactory.

It is interesting to observe how a man who has gained some degree of knowledge of any kind usually feels the greatness of his debt to it, and what a poor maimed creature he would be if he suddenly lost it; so far he is right; it is not right, however, to go further, as is so often done, and to conclude what poor maimed creatures are all men who do not possess this knowledge, and to despise and disparage them accordingly; the cockney and the yokel are understood to regard each other with precisely the same feelings; but, after all, they have the excuse of being unlearned and ignorant men; and neither of them enlarges upon the futility of the other's knowledge; whereas educational partisans spend no little vigour in denouncing the worthlessness of some subject with which avowedly they have little or no acquaintance.

This is doubly regrettable, since it is not only an obvious hindrance to serious enquiry but also exaggerates the vulgar disbelief in the value of knowledge, by apparently justifying it.

Yet I must now offer reasons for dissenting more or less widely from some opinions which are confidently advanced in the controversy between the humanists and the friends of physical science. Thus when we are told that the study of an experimental science teaches observation and sound induction, we must ask what this statement means; if it means (as it seems to do) that universal observation is taught; that the student is sure to become an observant man, or a reliable observer of all sorts of phenomena, we most demur; the study of chemistry, for example, teaches observation of chemical phenomena, but may leave the student blind to others that leap at the eyes of a geologist or engineer. Hence we should hesitate to admit that it has more than a gymnastic value for other groups of phenomena; moreover, this gymnastic value may be found in an equal or even greater degree in other studies; for the methods of chemistry, within the range likely to be traversed by the ordinary student, seem to the outsider singularly artificial.

The student enters a laboratory furnished with everything he can require; substances, simple or compound, are ranged around, each in its own carefully labelled vessel; in the case of compounds the various ingredients, and their ratios to each other are stated precisely; further, the materials are pure—are exactly what is

indicated by the label; and unless by his own fault, the student will work with all his apparatus chemically clean and deal with problems each of which involves few elements. He should thereby acquire a lofty ideal of inductive stringency, but will he be well prepared for the ordinary business of life? On the other hand, this abstract nature of the study may be a merit, because it shows in their purest and simplest form, freed from all irrelevance, those inductive processes which apply to cases where a crucial experiment is a matter of course. But if that is all, do the methods of chemistry contribute more towards a training in induction than is contributed towards a training in arithmetic by the first four simple rules?

When we apply our second and third questions to chemistry, and ask what is the student leaving undone, and what habits of mind is he tending to form by his study? we must note that the subject takes no cognizance of the existence of other human beings, and of the student's relation to them; in fact such relations can come into his mind only as an irrelevance, interrupting the business in hand.

Now effects of some sort must follow from thus living, as it were, in an unpeopled world; the tendency presumably will not be in the direction of strengthening the student's

capability of understanding his neighbour's conduct, motives, and feelings; and defect in this point is a fertile source of mistakes in all the business of life, and especially of that ignorant inadvertent cruelty which causes so much gratuitous misery in the world. Our fourth point was, will the phenomena studied probably come before us much in after life? Obviously, we live in an ocean of chemical phenomena, but how far existing chemistry is able to deal with them, and whether they come within the scope of such chemistry as is likely to be mastered by the ordinary student who will not become a professed chemist—these are questions which must be referred to the chemists themselves; whom however I would ask, if I may do so without presumption, to be on their guard against the tendency of specialists to undervalue an elementary knowledge of their subject. (5 and 6) If I rightly suppose that the methods of chemistry are highly abstract as said above, then although they show the naked framework of rigorous induction, they will not be readily applicable to other matters, nor will chemical laws often be found to throw light on other enquiries, because their application will require more skilful handling than will generally be available; the average youth who knows something of induction in the exact and unimpeded form of chemical experiment will be in a position

little better than a boy whose arithmetic is limited to the four simple rules; both alike are possessed of the essence of the thing; but although the boy will never do anything more in arithmetic than add or subtract, multiply or divide, we all know that he has before him a long spell of learning how to apply his processes before he can pass muster as an arithmetician; further, teachers of experience know that very few boys will ever take one step in advance without teaching; that most need much teaching; while some seem never to know what they are doing, though they can work rapidly and accurately when told what to do; like a slide rule, they can be utilised in the solution of problems by an external intelligence; but left to themselves they use their processes quite at random and are as helpless as the slide rule.

So it must be inevitably with the methods of chemistry or physics; or indeed with any method or subject; it is difficult to teach boys to bring different lessons to bear on each other, and nothing gives a better measure of a boy's capacity than the degree of ease or difficulty with which he learns to do this. But no subject, no teaching, no plant or apparatus, however lavishly supplied, can create brain power; we can only save it from running to waste; which we now fail and must fail to do, so long as our school system is organised

on the hypothesis that all boys are equally capable of acquiring knowledge of any kind we choose to prescribe, if only good teaching is copiously supplied.

Taking all these things together, I doubt if it is yet made out that chemistry is in the first rank of desirable subjects for Secondary schools in general, where its value must depend exclusively on its merits as an educational instrument, and when we also consider its great and growing costliness, both on capital and on current account. It has certain claims on the ground of affording practice in delicate weighing, measuring and manipulation, and of inculcating the great value of measurement; but it has no monopoly of these merits.

Let us next apply our series of tests to the old-fashioned study of Greek and Latin; first what faculties does it use or leave unemployed? What are we doing when we study Greek or Latin in the old way? We must begin by learning to observe accurately. I have indeed recently read that among the defects of classical study is its entire lack of observational work; but for myself I have some difficulty in conceiving of any study that does not begin with observation, and continue the process through every stage of its advance. Of course the attention of the student is invited only to the special phenomena of his subject, and may never pass beyond them; a very sound "scholar"—

or chemist—may be blind to other very obvious phenomena which he has not studied; indeed, as omniscience is beyond us, we can only attain knowledge in one direction at the cost of remaining ignorant in another; hence it is important for the mass of us that such powers and opportunities of study as we happen to possess should be expended on the subject which has most points of contact with the realities of ordinary life, and is most likely to carry our thoughts further afield and to give us light outside its own narrow province.

At this point quite a number of people will be ready to break in with exclamations that this is precisely their point in objecting to Greek and Latin; the attention of the student is engrossed by mere words, instead of things; they would have him quit such frivolous waste of his time and powers, and open his eyes to the inexhaustible marvels of natural phenomena. Those who argue thus appear to suppose that language is something which we manufacture as it might be calico; even if it were, it might still conceivably be a subject of profitable scientific study; but in truth a language is as much a natural product as a tree or a range of mountains; the antithesis between words and things is a mere figment, for words are things; and he who would learn the laws by which words are governed must make use of the same powers of observation and induction

as are employed to discover any other laws of Nature. Hence if any one obeys the call of other sciences and forsakes the investigation of language he only changes the study of one set of natural phenomena for that of another—not necessarily of more importance—possibly of less; but if he should ever learn the meaning of the word science, or the nature of science, the thing, he will know that the study of Greek is at least capable of being scientific, no less than the study of chemistry or physics, though it is true that too often it is not. But then it is equally possible to go the wrong way to work with chemistry and physics; and this also is often done; indeed it is usually done, if we must accept the judgment of Professor Armstrong. But in truth the difference between scientific study and cram does not depend in the least on the subject, but wholly on the spirit, motive, and method we employ. But while it is beyond dispute that the study of language must depend on observation and induction as much as the study of any other branch of “natural knowledge,” to use Hume’s term; yet it is true also that it offers no facilities for manual training (except writing and map-drawing), nor perhaps for experiment, on which Professor Armstrong lays great stress; but of this I am not quite sure; for translation, either way—the attempt to express in English the thought that was shaped in and by the Greek language,

or *vice versâ*, seems to resemble experiment, and has a similar effect in awakening the attention to factors which had not been observed, but prove to be of high importance. The eye too, though trained to really amazing speed and preeision in recognising not letters only but whole words and even phrases, yet gets no other training, and is indeed liable to injury by being used too persistently at one range, because the muscles which adjust the lens are enfeebled by disuse. Still this tendency to injure the sight is not peculiar to the study of language. But what are we doing when we are studying a language—say Latin—in the old-fashioned way? Take the case of an intelligent boy who is honestly trying to learn his Virgil or Cicero lesson. His problem is to discover the thought of his author, which may or may not be worth doing for its own sake; the evidence before him consists primarily of the words in which the thought is expressed. In order to make anything out of this evidence he must have learned something about each individual word employed, and understand the relations of the words one to other as indicated by the grammatical structure of each clause. After that is achieved he must discover the logical relations of clauses, sentences and paragraphs each to each.

This, however, we are told is mere exercise of memory carried on under the enervating

influence of submission to authority; but this is not quite the fact. Much more than memory is required to recognise particular instances of a general rule of grammar, and to make use of the recognition for the purpose of interpreting a sentence; while one of the advantages of practising translation is the painfully abundant and aggressive evidence which it forces upon us that words (especially common words) are very much alive and not to be imprisoned in any single meaning. Of course this is as true of English words as of others, but an English boy often first realises it by making some wonderful mistranslation from English; while failure to realise it is a fertile source of errors in reasoning, many of which would be impossible in another language.

It is true that the beginner depends on authority for his first knowledge of grammar; but what does that mean? Surely no more than that he is utilising the labour of past generations, which not to do would be mere folly; the beginner in any subject must do the same, if he is ever to be more than a beginner. Furthermore, although he has been enormously helped forward by accepting from authority a principle or fact which it may have cost his predecessors years or generations of research to discover, yet he has still to solve the problem how to make that principle his own—part of himself; in this task authority cannot help

him at all, so far as I can see; the one way is to observe a number of particular instances of the principle in application; the universal and the particulars gradually give to each other a meaning which neither can have apart from the other. This is easily seen in the case of those one hundred and forty-four principles which we call the multiplication table. These the child accepts on authority, and learns by heart, and perhaps supposes that he understands; but they are a mere rigmarole to him until by frequent application to particular instances, not without many blunders, he has made them part of himself, which no authority can do for him. So it is I imagine with every kind of generalisation or rule or principle or law, and certainly with those laws of Nature which are called grammatical rules.

The variations of meaning in individual words can be observed by a pupil quite early, and a good teacher will early set him to discover the steps by which meanings as far apart as “stinking” and “dignified”¹ can have grown from a common original; will set him in fact to study the life history of the word, and of the human thought which it embodied. Next, and still before the pupil is far advanced, will come the proper employment of a dictionary—not a vocabulary, but an adequate museum of

¹ “*Galbaneoque agitare graves nidore chelydros,*”

“*Vir pietate gravis,*”

specimens arranged on scientific principles, where the life history of most words can be seen clearly enough; much more clearly, as the learner will soon find than in the English equivalents proposed by the compilers of the dictionary, which will be seen to be mere labels on the cases in the museum—expressions of the compilers' individual opinion, to be taken for what they are worth.

This I suppose to be the way of good teaching and honest learning of Latin or Greek, but I am bound to admit that often it is lacking. Laziness loves to lean on authority, especially that *ad hoc* authority a vocabulary—or, still better, a “crib”; and the demand for visible, or rather apparent, output will not allow the teacher to waste the pupil's time by requiring honest work from him. Still if we would correctly estimate the value of any study, we must postulate that it is properly studied and properly taught.

Possibly the pupil, like M. Jourdain, little thinks that he is doing what I have described, but do it he must and in fact does whenever he makes out the meaning of his passage. But he has more to do, for many things will remain quite obscure till he has in some measure acquainted himself with the environment in which his author worked.

He will hardly read a page without coming across passages or phrases expressed in terms of

an old-world polytheism (in which, moreover, the writer did not believe), while here and there crops up the stoic philosophy (or religion) in which he did believe. Christianity did not yet exist, and the huge city of Rome, with a population possibly running into millions, did not contain as it would seem, an infirmary or an almshouse; while to exact vengeance was a duty universally recognised.

In every department of life the ideals of Virgil or Cicero, their experience and their way of looking at things, differed in this striking way from those amid which an English boy is born and bred; and in the process of getting at their meaning, he must learn to recognise and allow for these differences, which is learning history in the real sense of the term, and brings with it a consciousness of his own environment which is not attainable without knowledge of something different; just as none of us is conscious of the pressure of the atmosphere, because we have never known it absent. But the boy has yet to struggle with the problem of expressing in English the thought of his Latin author, which will force upon his attention two or three things very good for him to know. He will discover that his own command of ordinary English is extremely limited; that his vocabulary is not only small in quantity but bad in kind, consisting largely of slang, and mere colloquialisms,

which he soon feels to be intolerable as the expression of any serious thought. By thus realising his defect he takes the first and not least important step towards remedying it, to which—at least on the negative side—translation largely contributes; as it does something too on the positive side; for even if a boy takes no other steps to enlarge his vocabulary, he will perceptibly increase it by hearing his class-fellows translate, and he may learn something from his teacher. In any case he must make constant efforts to express thoughts of wider scope than his own, the thoughts of grown men, men of genius, men who have played a great part in shaping the history of the world. It is difficult to suppose that this will not tend to strengthen his own powers of thought; and it seems inevitable that having to rely entirely upon his own very small vocabulary, he will at least acquire some degree of skill in making it serve his purpose, and will have increased his power of putting his thoughts into words.

It is no answer to this contention to adduce the cases of Dick, Tom and Harry who “received a classical education,” yet cannot write grammatically, while other cases can be quoted *ad libitum* of men who can write and speak admirably without having had much schooling of any kind. The former were no doubt sent to a classical school, but manifestly

they never received a classical education, whether because they could not or because they would not.

The same reproach precisely, that it fails not unfrequently to produce its intended result, can be urged against any and every other study; yet the tendency of each study to produce a particular effect on the student remains undiminished, although in some instances it may be counteracted by opposing forces, while in others again an effect similar to that which the given study tends to produce may be brought about by other causes.

An important function of good teaching is to make the pupil feel that his knowledge falls short of what he might well attain; that apart from downright mistakes, or blank ignorance, it is vague, indistinct, and fragmentary, where it might be (comparatively) clear, precise, and full; and this tends to make him discontented with his sorry outfit of sham knowledge.

Translation either from or into, but especially into, English is a useful instrument for attaining this end, and being in part self-acting is to that extent more effectual than any process of correction that depends wholly on the teacher. If any one attempts to translate a passage when he has only a nebulous impression of its meaning, he finds for himself that this impression is not adequate for his purpose, though before testing it he may quite honestly

have thought it ample. Thus he sees displayed in a striking instance the difference between real and fancied knowledge, and his own liability to be deceived by the counterfeit.

Such then I believe to be a true account as far as it goes of what the study of Latin and Greek really is, when properly pursued. It will be seen that I entirely omit the intrinsic value of the literature to which it gives access, because I wish to discuss only its value as an instrument for teaching what will be practically useful to the pupil in his adult life, whatever his line of life may be.

Since then, this study is a branch of natural knowledge, depending like the rest on observation and induction, giving no less exercise to the faculties of observation and induction, and therefore yielding to no other study in gymnastic value:—let us next enquire whether the phenomena with which it is concerned are likely to come before us much or little hereafter in the ordinary business of everyday life. We have seen that the phenomena are the life history of words and the natural laws—grammatical or logical—which govern the employment of words for the expression of thought with the maximum of accuracy and clearness. The problems which come before the student are of two classes: (1) What is the thought embodied in a given set of words? and reciprocally (2) what words, and what arrange-

ment of them, will best embody a given thought? These practical problems come before every human being every day, and many times in the day before some; indeed they come before all oftener than they are recognised as problems which demand solution, and which if not correctly solved entail penalties that may prove extremely heavy. No doubt mankind is abundantly voluble, and to the unreflecting it seems a perfectly easy task for a man to say what he means; and so perhaps it is, so long as he means little more than nothing. He can remark on the weather, or ask for the mustard, or even order a new coat—by word of mouth—when the surrounding circumstances help to elucidate his meaning. But even that is not so easy, if he has to depend exclusively on the words employed; as for instance, if he has to order his coat by letter.

Hence, as I am told, when a youth first enters on commercial life, he will have to serve two or three years before he will be trusted to write the simplest business letter. Further, any one who will read the *Times* law reports regularly for a few weeks, will find that a large part of the business of the Courts consists in struggles to discover what is meant by the words used in some Act of Parliament, or conveyance, or lease, or will, or other document. In fact it will plainly appear that to give accurate expression in words to a thought

(or meaning) that may look quite simple, instead of being an easy task, is really one of the most difficult in the world. But then every one more or less frequently needs to use words in this important and difficult way, and though prudent people early seek the expert advice of a solicitor, that is not always quite possible for many reasons; we must often worry through as best we can, unaided, though the penalty of error will not be any the less on that account. For in private life, no less than in our business relations, much depends on our being able to give accurate expression to our own meaning on the one hand, and on the other to gather accurately the meaning of those around us, if we would avoid misunderstandings, and all that may follow from them. The truth is that language is a singularly delicate and complex piece of Nature's mechanism; to employ it rightly and advantageously rather than disastrously—as is very easy—requires practice reinforced and enlightened by a scientific study of the processes by which it performs its function of expressing thought; in short it requires technical training; and since the use of language is the one *techné* of which we can assert that every human being will need to practise it, it seems to follow that a scientific study of its processes is the one branch of technical education which will be useful to

every one, even if useful means only lucrative. But it has another usefulness as well, which many would account greater; it does really tend to "soften manners";—to make men, not perhaps essentially better; it cannot do much to counteract selfishness, meanness, and cruelty; but the habit of carefully getting the exact meaning out of words is a habit of exercising the sympathetic imagination, of putting yourself in the place of the person whose words are under consideration, in order to follow his train of thought, and get at his point of view. In proportion as any one succeeds in forming this habit, he lessens his liability to misunderstand and be misunderstood by his neighbours, and to inflict pain out of sheer blundering inadvertence. He may still be a poor creature, and at bottom vastly inferior to some "rough diamond" whom we could adduce; yet he may prove a better neighbour in those commonplace circumstances of current life which constitute the whole of life for most of us. The great occasion that should reveal the true worth of our rough diamond will most probably never arise; but though his worth remains hypothetical his roughness is ever with us; and in proportion to the degree in which it exists and operates, it disables him from performing his proper function as a member of an organised society, and makes him a bad neighbour. Can it be

shown that any science which deals only with the phenomena of inert matter has a direct tendency to polish the rough diamond? I am not qualified to form a definite opinion, and can only propound the question. But again I must repeat that it is idle to quote instances of chemists or physicists who are admirable in all their social relations, or of learned "scholars" who are not; the virtues of the former and the vices of the latter may be due to quite other causes, which in the case of the scholar his studies have not been able to counteract. What is needed is to show that a study of these other sciences has a tendency always acting, if not always visible, to produce the desired result; that, in short, when used as an instrument of teaching in an ordinary school, it is a civilising agency.

That these sciences have given us wonderful discoveries is nothing to the purpose, because when one of them is adopted as an ordinary school-subject, it will be taught to a multitude out of which only one in some thousands will ever become so advanced a student as to be capable of original research in regions not previously worked. For all the others there is practically no chance of discovering anything not already known—even if they had leisure for research, and should not be under the necessity of earning a living; so for them the one important question is

whether the study of the subject proposed to them has more or less power to benefit those who cannot carry it very far. Tried by this test, the old classical training seems to come out superior to any of its newer competitors, since its subject matter does in fact consist of those phenomena with which every one of us is most concerned. The methods by which from a given speech or letter we endeavour to discover the aims and motives of Cicero, are equally applicable to a speech or letter of any living statesman, or of any private person with whom we have to do. Finally, we have daily and hourly need for all the skill we can muster for the clear and accurate expression of our thoughts; and this not only for the immediate purpose of conveying our meaning to another mind, but also because thought and speech are so closely interwoven, and react upon each other so powerfully, that clearness and accuracy of expression is essential to clearness and accuracy of thought. The thought that we cannot express is a thought that we have not yet fully grasped and thought out. Thus power of expression is a useful and indeed necessary instrument for the thinker, which he requires both for working out his thought in his own mind, and for conveying it to the minds of others; hence the old classical drill should furnish an admirable grounding for those who

are afterwards to become students of science. But Professor Armstrong tells us that in his experience this is not the case; he describes a truly admirable method which he employs with his pupils before they commence an experiment or investigation; they are required to put down in writing what they propose to do, and why; then when they get to work practically, they must make notes of each step, and of the inferences from it, pointing out whether they agree or conflict with the hypothesis on which the research is based. For this kind of work the classically trained pupils show the least aptitude, though their training in language should—on my theory—give them an appreciable advantage. Nevertheless my theory is not experimentally refuted, because Professor Armstrong's experience does not amount to an experiment, nor indeed does he make any such claim for it; but no doubt recognises that the classically trained pupil is a factor too little known, so far, to form the basis of a sound induction. In fact before he could be so used it would have to be shown that he was not already a proved failure, who "did not like" Latin, but "thought he had more taste for chemistry," till he found that chemistry also meant work, and had become a veritable whip of scorpions in the ruthless hands of Professor Armstrong.

Many perhaps might be disposed to agree

that the study of language has advantages of its own, but will say that the language to be studied should at least be one that is still spoken, and surely in the first place should be the mother tongue of the student. But for some reason, it is very difficult to teach direct observation to the phenomena of the mother tongue; perhaps it is too much part of ourselves, and so eludes us, like the movements of our own muscles, which the surgeon learns to analyse by a course of anatomy, not by direct observation of his own body.

Modern languages are not available for the purpose of scientific study by beginners, because the needful apparatus does not exist; the grammars might pass, but is there for French or German anything equivalent to Lewis and Short's museum dictionary of Latin? Secondly, French models have had so much influence on English that easy French is too like English to present those sharp contrasts which are so useful in teaching. German, with its inflections, is different enough, but is a bad model of style, being cumbersome and tending to obscurity. Thirdly, we want to teach not only words and the structure of sentences, but ideas; once more the utility of sharp contrasts comes in; the stock of ideas current in London, Paris and Berlin is too nearly the same to provide the contrasts that arrest the attention of beginners; but the differences between London and Rome

or Athens, in the time of Cicero or Pericles, seem to be even greater than they really are; also they are differences to which attention can be drawn without much danger of hurting susceptibilities. Finally, the latest improvement in the method of teaching French and German consists in eliminating as far as possible every vestige of scientific study, and everything which can give the victims training or education of any sort; the aim is to make them talk French or German by a sort of reflex action, as a dead frog can be made to go through the motions of scratching himself. We may hope that this particular futility will have only a short life; but while it exists, and where it is in force, French and German have ceased to exist as instruments of education.

It may seem an undue discouragement of educational enthusiasm to proclaim that schooling is only a fraction of education; that whatever the subject chosen to be taught (beyond the three R's) it will have little or no direct value for nineteen out of every twenty of those who will be set to learn it; that even the indirect or gymnastic value is mostly something not immediately obvious, being only a tendency to produce certain effects, which effects cannot be guaranteed in any individual case, and in many cases are quite undiscoverable. Further that the physical sciences are not more nor otherwise scientific than Greek or Latin, while

they are equally liable to have their educational value reduced or even destroyed by bad methods of teaching and study; and in addition have the disadvantage of leading the student to spend his intellectual life in a world apart, into which human relations do not enter. Yet because these considerations are at first sight discouraging, it is better to state them plainly at once, and not leave them to be learned by costly experience, involving the risk of a reaction, which must be expected to follow when ill-grounded hopes meet with their inevitable disappointment. The enthusiasts might be content merely to lament their mistakes, learn their lesson, and begin all over again; but the general public would at least be in danger of taking a different view, when vast sums of money had been expended, and would probably refuse to begin all over again, being assured by actual experience that education was only a sham, on which no more money ought to be spent. I have some sympathy with the general public in such a trial of its faith as I am supposing; for although for the sake of clearness I have tried to present my views in the form of observation and inference, I cannot pretend that I got at them by so direct and painless a process. That came afterwards; but I had first to learn that I was entertaining a multitude of untested preconceptions which failed to fit the facts when the test of practice was applied. Thus I had

prepared disappointments for myself, which would have been discouraging enough if discouragement had been permissible, but I had perforce to treat them merely as opportunities of correcting my mistakes by fuller research into the factors of the problem. The public would not be under the same constraint, so I have misgivings when I see Parliament basing educational policy on much the same set of untested preconceptions as led me to disappointments. Yet my aims did not seem very extravagant; all I wanted was that practically all the boys in the school should be working willingly at something; nor did I care what it might be, if I could provide the means of teaching it. I did not expect every one to take kindly to Greek and Latin, for though these languages had monopolised my own study, I had always felt that the physical sciences would have claimed me, if I had had any choice. Thus my hopes were high when I was able, nearly thirty years ago, to introduce French and German, chemistry and physics, into a school where they were new; I was also singularly fortunate in the colleagues whom I was able to secure.

It seemed certain that in the centre of a great mining and manufacturing district mere self-interest, and the desire to get on, would lead a number of boys to work away at science and modern languages, even if they

supposed that classics and the higher mathematics would not be of any use to them. But neither then nor since, have I ever found the appeal to self-interest exercise any appreciable influence over boys; partly because it is too remote; it asks the boy to shun delights and live laborious days now, for the sake of a reward to be reaped ten or twenty years hence. The offer of prizes stirs occasional energy in the two or three who hope to gain them, but I fear chokes off a large number who suppose—often quite wrongly—that they have no chance of success. Discipline is more effective, and gets a useful amount of work done by those whose spirit is not altogether unwilling, though their flesh is weak. In the later seventies it was almost axiomatic that apparent self-interest actually was, and that enlightened self-interest ought to be, the actuating motive of all human conduct, so that it was something of a shock to discover how large is the proportion of boys who are quite unmoved by the remote interest of success in life, or the nearer interest of prize-winning, or even the immediate interest of avoiding collisions with discipline. One might suppose that the most frivolous would rather face half an hour's honest and useful work on Friday evening than an hour's penal drudgery on Saturday afternoon; and so he would in a general way—but not on Friday evening.

No, he will rather gamble on the wildest chance of escaping detection or evading the penalty, and will spend as much thought and ingenuity over inventing a plausible excuse for shirking the work as would have sufficed to complete it handsomely, with credit and advantage to himself. To such boys—and there are many of them—it is of no consequence what subject is proposed for their study, and I had to recognise that my introduction of the new learning was a failure, so far as they were concerned; it did not lessen their number by one. For the workers it was perhaps a genuine benefit to have a certain choice of subjects, so that they could select such as seemed congenial, and therefore more likely to excite and retain their interest. But even this is open to dispute, for it is not so much that interest in a subject makes us work at it, as that working at it sooner or later arouses our interest. For the genuine study of any subject whatever must always involve many spells of long and arid drudgery, the endurance of which will call for something more robust than interest of this kind. Possibly, although we give the same name to both, the interest that attracts us to start on a subject is different from the interest in it that results from the expenditure of time and effort; any way the latter is much more powerful, and much less easily snuffed out. Further, there

are those who will urge that uncongeniality in his subject benefits the student more in one direction than it hinders him in another. But I had expected to effect something greater than merely substituting a more for a less congenial subject; I held the current opinion that different kinds of brains were required for different kinds of study; and that a boy might be capable of doing quite well in one, while incapable of achieving anything in another. Hence I supposed I was offering a chance of success to boys who would otherwise have had no chance; but I have not had any ground for believing that this has actually happened in a single instance within my own observation.

It can easily be understood that I was both disappointed and perplexed; my important reform, as I expected it to be, turned out to be no more than a change of fashion; a few capable boys were doing satisfactorily in chemistry and physics, who would otherwise have been doing satisfactorily in classics, but no undiscovered capacity was revealed, and the submerged tenth remained untouched. But still worse, the boy of just average ability and industry was equally untouched; the supposed greater chance of getting on in the world left him as cold as it found him; so clearly I had to reconsider the whole question. Gradually I was led to conclude that intellectual

capacity is very rarely special, but is specialised by habit; that the direction in which it will be specialised is determined by accidents of environment, not by its intrinsic qualities, nor by the intrinsic attractions of the line chosen, of which indeed the beginner can have no knowledge. Something in a boy's environment makes him think it would be a fine thing to follow some particular way of life, and if he has grit in him he will be ready to face a good deal in pursuit of his ideal. It is very unlikely that the student's life will attract him, but very likely that he will desire some life in which success is hardly possible without study. Then come two questions: Can he be made to understand, or at least to believe, while there is yet time, that study is necessary; and has he grit enough to face the inevitable drudgery? The process of considering boys in the light of these two questions naturally led to a further question—Why is it that boys and their parents are, as a rule, so sceptical of the utility of knowledge? and why do so many boys lack grit? This scepticism dies away at once when there is an examination to be passed; no one questions the utility and necessity of study for this purpose. The reason for the difference seems to be that in the matter of examinations the public has not been deceived, nor has it deceived itself. No more is claimed for study as the means of passing examinations than that

a sufficient amount of it, joined to sufficient brain power, will make the candidate *capable* of passing, although every one realises that any one of a multitude of possible accidents may prevent his actual passing; but study is not expected to enter the candidate's name, or pay his fee, or keep him alive and in health, or guarantee his attendance at the appointed time and place, or his conduct in the examination room. In fact, the problem of passing an examination does not involve more elements than the public mind can grasp; therefore, the value of study, as one of the number, not being over-rated, escapes the liability to be under-rated. But it has not been so with study in its bearing on other parts of our lives; in this matter, as I have endeavoured to show, the public mind has been deceived or has deceived itself; hence on one hand groundless expectations, followed by dis-illusionment and scepticism; and on the other blindness to the benefits which study has a real tendency to confer on those who can receive them—which many cannot. Now, is this scepticism—which, as I contend, is almost universal—likely to be lessened or increased by evicting Latin and Greek to make room for this or that other subject, which experience will soon show to be equally a matter of hard work, equally useless as a means of making money, and therefore equally unworthy of the consideration of a

practical man? Will intrinsic unfitness for study be removed by forcing study on a multitude of whom many will be intrinsically unfit?

Theory and experiment agree in forbidding us to expect any satisfactory result from such "reforms," because they are really irrelevant to the evils which call for remedy. Even granting that all the proposed reforms will be real improvements—as far as they go—where is the use of offering ampler opportunities of study or improved methods and appliances to those who have neither natural inclination towards study, nor belief that it forwards any end for which they care?

What we need is a healthier public opinion capable of understanding that "Studies serve for Delight, for Ornament, and for Ability"; or if Delight and Ornament must be ruled out, and nothing may be considered but earning power, then at least the public might be got to understand what Bacon meant by Ability; the public does understand the matter in other civilised countries, notably in the United States, as the Moseley Commissioners strikingly testified. This ability—which studies can develop and improve though they cannot create it—is not a specialised tool of trade, but the power of using, and on occasion of devising, specialised tools; and, after all, to appreciate its value, and the value of everything that tends to improve it, does not require more farsightedness

than goes to the cushioning and heating of third-class railway carriages, or putting plate-glass windows into a shop front, of which Englishmen are as capable as their neighbours; so that a sounder public opinion on educational matters is no impossibility in England, if only our educational enthusiasts would base their advocacy of schools on real grounds, and not on exceptional instances of accidental benefits—as if they were agents for the sale of lottery tickets.

Again, the fact ought to be faced that not a few boys are quite unfitted for study, and ought not to be in Secondary schools which are in any degree supported by public money, whether derived from endowments or taxation. I must repeat that the presence of such boys in a Secondary school works incalculable mischief both to themselves and to every other boy in the school, and is the proximate cause why so many young Englishmen play at business, and make a business of play.

Tinkering at the curriculum cannot affect the matter, though it seems to be all that the Board of Education has to propose; neither is it of any use to place in the hands of Governing Bodies and Head Masters powers which it is financially impossible for them to exercise, while the getting in of fees remains their most urgent business.

But if public Secondary schools were open

only to those who were both able and willing to make serious use of them, what would become of those who were rejected or eliminated as unfit? Some at least would realise the position, and make themselves fit. For the others, the best thing possible would be that they should be set to work so much the earlier, instead of spending three or four years in a pretence of preparation which does not prepare. Some even of these, when brought into direct contact with the realities of life, would find out for themselves that they were ill-equipped for the struggle, and would perhaps at last make a real effort to improve themselves by means of evening classes or otherwise. Some, no doubt, parental fondness would insist on keeping at school for the full length of time prescribed by their class tradition; but in that case the parent should bear the whole expense, without help from any public funds. ✓

This, however, is a question for Parliament, or for the new local Educational Authorities, if ever they should become sufficiently heroic to face the difficulty, and by removing it to add much to the real value of schooling, and from fifty to one hundred per cent. to its visible results.

For the individual enquirer, whose aim is simply to see things as they are, the crying need is extreme caution in accepting apparent or alleged facts, no matter on what authority, ✓

and still more in attempting to interpret them, and this both because of the inherent complexity of the phenomena, which must always remain, and also because observation and inference alike are obscured and perverted by mere controversy.

Any one who has cared to follow the argument thus far will have perceived that it is almost entirely destructive, and goes to show that we are not yet in a position to undertake constructive work, with any reasonable hopes of success, because of our ignorance of the factors involved in the problem. Further, that our ignorance can only be removed by much research, pursued by better methods than are at present in use. The time may come for us to scrap our existing machinery, costly as the process must be; but at present we have not evidence to warrant a belief that new machinery will be any better than the old; and it may prove worse, for all we know. Still, a few points of light seem to be discernible.

Thus we see that the effects of schooling may be of three kinds: one effect is to provide the pupil with tools of his trade; but we see that the Secondary school can do little in this direction, owing to the variety of occupations which the pupils will follow. From this practical point of view it seems that to employ language with understanding is the most widely useful of all arts, and that we have no means

✓ of teaching the art which is as effective as Latin; therefore that Latin is the most practically useful of school subjects.

Secondly, there is the purely gymnastic effect of any study, which must be the chief concern of the Secondary school. Judged by this standard it seemed that Latin had advantages which are commonly overlooked; so too chemistry had defects, particularly the serious one of lacking human interest—a defect common to all branches of physical science. There is, however, no point which stands in greater need of patient investigation than the true gymnastic effect of different studies; but no investigation can succeed unless it is based on a revised method.

To provide a moral gymnastic is the third effect of schooling; for his schooling must always be the pupil's principal or only business, which if he attends to it, affords him exercise tending to produce what any one may call as he chooses good business habits or good moral habits or religious habits. This effect is quite independent of the subject, and of the teaching whether it be good or bad; it depends wholly on the pupil's attitude; if he does his best at his Scripture lesson, that lesson is a religious exercise; and so too is algebra; but when he scamps his work, even the Scripture lesson becomes a positively irreligious exercise.

Though this effect is here placed third, it stands first in importance on every ground.

It has its high intrinsic value, even if for any cause neither of the other two effects is produced ; but if it be not attained to some considerable degree, there is no possibility of achieving either of the other two kinds of advantage offered by schooling. So, willingly or unwillingly, every teacher must be a teacher of religion and morality, in every lesson given, just in proportion as the pupil is stirred up to honest industry and honest thinking. The teacher who feels thus about his work can hardly be content with the distinction between religious and secular instruction, and sees ruefully enough the lavish expenditure of energy in controversy about the former, while so little is available for awakening the public mind to a right conception of the latter.

PRINTED AT THE EDINBURGH PRESS
9 AND 11 YOUNG STREET.

FROM MR. MURRAY'S EDUCATIONAL LIST

Complete Catalogue Post Free on Application

MATHEMATICS.

Arithmetic.

PRACTICAL ARITHMETIC. An Introduction to Elementary Mathematics. By S. O. ANDREW, M.A., Headmaster of Whitgift Grammar School, Croydon, and A. CONSTERDINE, M.A.
F'cap 8vo. Published in one volume, 2s.; or separately, in two parts, 1s. each.
Edition with answers for teachers only. 2s. 6d.

THE RUDIMENTS OF PRACTICAL MATHEMATICS. By A. CONSTERDINE, M.A., and A. BARNES, M.A. With 180 Diagrams, Answers and Index. F'cap 8vo. 2s. 6d.

This book is written on the same system as *Practical Arithmetic*. It is intended for the use of students over twelve years of age, especially those who wish to make practical use of their knowledge in after life.

ETON EXERCISES IN ARITHMETIC. By REV. T. DALTON, M.A. Assistant Master at Eton College. Crown 8vo. 3s.

ARITHMETIC MADE EASY. Lectures on method, with Illustrations for Teachers and Pupils. By MABEL A. MARSH. Crown 8vo. 2s.

This manual applies the heuristic method to arithmetic-teaching, and is especially recommended for use in Training Colleges and for all members of the teaching profession.

HIGHER ARITHMETIC. By JOHN KEEFE, Principal of the Civil Service Academy, Liverpool and Manchester. New and revised Edition. With Answers. Crown 8vo. 3s.

This book is based primarily on the questions set in the various public examinations held by the Civil Service Commissioners during the past twenty years.

CIVIL SERVICE ARITHMETIC. By JOHN KEEFE, Principal of the Civil Service Academy Liverpool and Manchester. Being a compilation of Papers set at Examinations for Boy Clerkships, Customs, Telegraph Learners, &c. With Answers. 10th Thousand. Crown 8vo. 1s. 6d.

CIVIL SERVICE TOT BOOK. By JOHN KEEFE, Principa of the Civil Service Academy, Liverpool and Manchester. Contai 144 Exercises in Long Tots or Compound Addition, and 192 Exercises in Cross Tots. 4th Thousand. F'cap oblong 4to. 1s.

Algebra.

ALGEBRA. In two Parts. By E. M. LANGLEY, M.A., Senior Mathematical Master, Modern School, Bedford, and S. R. N. BRADLY, M.A., Mathematical Master, Modern School, Bedford. F'cap 8vo. **Part I.**, 1s. 6d. **Part II.**, 2s.

Specially adapted to the requirements of the First and Second Stages of the Directory of the Board of Education, South Kensington.

ETON EXERCISES IN ALGEBRA. By E. P. ROUSE and A. COCKSHOT, Assistant Masters at Eton College. Crown 8vo. 3s.

Geometry, &c.

GEOMETRY. An Elementary Treatise on the Theory and Practice of Euclid. Having in view the New regulations of the Oxford and Cambridge Local, the London Matriculation, The Board of Education, and other Examinations. By S. O. ANDREW, M.A., Head Master of Whitgift Grammar School, Croydon. 3rd Impression. F'cap 8vo. 2s.

GEOGRAPHY.

PREPARATORY GEOGRAPHY for IRISH SCHOOLS. With numerous Coloured Maps, Relief Maps, Plans, and Views of well-known Places in Illustration of Geographical Terms. By JOHN COOKE, M.A., Lecturer in Geography, Church of Ireland Training College; and Examiner to the Board of Intermediate Education. Small Crown 8vo. 1s. 6d.

STUDENTS MANUAL OF ANCIENT GEOGRAPHY By CANON BEVAN, M.A. 150 Woodcuts. Crown 8vo. 7s. 6d.

SMALLER MANUAL OF ANCIENT GEOGRAPHY. B, CANON BEVAN, M.A. With Woodcuts. Small Crown 8vo. 3s. 6d.

STUDENTS GEOGRAPHY OF BRITISH INDIA, POLITICAL AND PHYSICAL. By GEORGE SMITH, LL.D With Maps. Crown 8vo. 7s. 6d.

PHYSIOGRAPHY.

THE REALM OF NATURE: A MANUAL OF PHYSIOGRAPHY. By DR. HUGH ROBERT MILL, Director of British Rainfall Organization. With 19 Coloured Maps and 68 Illustrations. Crown 8vo. 5s.

SCIENCE, TECHNOLOGY, &c.

Chemistry.

▲ **FIRST COURSE OF CHEMISTRY.** By J. H. LEONARD, Author of "A First Course of Practical Science." With numerous Diagrams. F'cap 8vo. 1s. 6d.

VOLUMETRIC ANALYSIS. By J. B. RUSSELL, B.Sc. Lond.), and A. H. BELL, B.Sc. Revised and enlarged Edition. Crown 8vo. 2s.

Physics.

▲ **FIRST COURSE OF PRACTICAL SCIENCE**, with full directions for experiments and numerous Exercises. By J. H. LEONARD. B Sc. Lond. With a Preface by the late Dr. GLADSTONE, F.R.S. 3rd Impression. F'cap 8vo. 1s. 6d.

▲ **FURTHER COURSE OF PRACTICAL SCIENCE, Mechanics, Hydrostatics, and Heat.** By J. H. LEONARD, B.Sc. Lond., and W. H. SALMON, B.Sc. Lond. F'cap 8vo. 2s.

Mechanics.

INTERMEDIATE MECHANICS. By A. W. PORTER, B.Sc. With numerous Diagrams. Crown 8vo.

SCIENCE, TECHNOLOGY, &c.—*continued.*Agriculture and Botany.

NATURE TEACHING. Based upon the General Principles of Agriculture. For the use of Schools. By F. WATTS, B.Sc., and W. G. FREEMAN, B.Sc. Large Crown 8vo. 3s. 6d.

THE SOIL. AN INTRODUCTION TO THE SCIENTIFIC STUDY OF THE GROWTH OF CROPS. By A. D. HALL, M.A., Director of the Rothamsted Station (Lawes Agricultural Trust). Crown 8vo. With Diagrams, etc. 3s. 6d.

ELEMENTS OF AGRICULTURE. A Text-Book. Prepared under the authority of the Royal Agricultural Society of England. By W. FREEMAN, LL.D. New Edition (Seventh). Crown 8vo. 3s. 6d.

A HANDY BOOK OF HORTICULTURE. AN INTRODUCTION TO THE THEORY AND PRACTICE OF GARDENING. With Illustrations and Diagrams. By F. C. HAYES, M.A., Rector of Raheny; Lecturer in Practical Horticulture in Alexandra College, Dublin. Crown 8vo. 2s. 6d. net.

A PRIMER OF BOTANY. By PROFESSOR J. B. FARMER, F.R.S. F'cap 8vo. 1s. [Ready shortly.]

CHAPTERS IN MODERN BOTANY. By PATRICK GEDDES, Professor of Botany, University College, Dundee. With Illustrations. Crown 8vo. 3s. 6d.

Geology.

STUDENTS' ELEMENTS OF GEOLOGY. By SIR CHARLES LYELL. Thoroughly revised by Prof. J. W. JUDD. Crown 8vo. With 600 Woodcuts. 9s.

AN INTRODUCTION TO MODERN GEOLOGY. By DR. R. D. ROBERTS, sometime Fellow of Clare College, Cambridge; Fellow of University College, London; Secretary to the Cambridge and London University Extension Syndicate. With Coloured Maps and Illustrations. Crown 8vo. 5s.

Technical Work.

METAL WORKING. By J. C. PEARSON, Technical Assistant to H.M. Inspector of Reformatory and Industrial Schools. With 12 full-page Plates and many Illustrations in the Text. 2nd Impression. F'cap 8vo. 2s.

ELECTRIC WIRING. A Primer for the use of Wiremen and Students. By W. C. CLINTON, B.Sc. (Lond.), Demonstrator in the Pender Laboratory, University College, London. With 80 Illustrations and a selection of worked examples. 3rd Impression. F'cap 8vo. 1s. 6d.

Written with particular reference to the requirements of the examinations of the City and Guilds of London Institute.

TELEGRAPHS AND TELEPHONES. By SIR W. H. PREECE, K.C.B., etc., sometime President of the Institute of Civil Engineers.

ELECTRICITY. THE SCIENCE OF THE NINETEENTH CENTURY. A Sketch for General Readers. By E. M. CAILLARD. With Illustrations. Crown 8vo. 7s. 6d. [In preparation.]

SCIENCE, TECHNOLOGY, &c.—*continued.*Physiology.

A PRIMER OF PHYSIOLOGY. By PROF. ERNEST H. STARLING, F.R.S. Illustrated. F'cap 8vo. 1s.

HANDBOOK OF PHYSIOLOGY. By W. D. HALLIBURTON, M.D., F.R.S., Professor of Physiology, King's College, London, Sixth Edition, being the Nineteenth of Kirkes' (see Note below). Again thoroughly revised. With nearly 700 Illustrations, including some Coloured Plates. Large Crown 8vo. 15s. net.

EXTRACT FROM PUBLISHER'S NOTE TO THIS EDITION.

Four completely revised editions of KIRKES' HANDBOOK have now been published since the editorship was first undertaken by Professor W. D. Halliburton in 1896. So extensive have been the changes made in these years, that but little remains of the original work, and the manual has now obtained a higher reputation and a wider popularity than at any time before.

In these circumstances it has been suggested by several professional men and other readers of the book that it would be well to drop the time-honoured name of "Kirkes," and to substitute for it that of the real author of the present volume—Professor Halliburton. Whatever prestige attached to the old title has now been rightly transferred to the new, and we have accordingly decided to adopt this suggestion, and to call the book in future "HALLIBURTON'S PHYSIOLOGY."

THE STUDY OF ANIMAL LIFE. By J. ARTHUR THOMSON, Regius Professor of Natural Science in the University of Aberdeen; Joint Author of the "Evolution of Sex"; Author of "Outlines of Zoology." With many Illustrations. Crown 8vo. 5s.

THE PHYSIOLOGY OF THE SENSES. By JOHN McKENDRICK, Professor of Physiology in the University of Glasgow, and Dr. SNODGRASS, Physiological Laboratory, Glasgow. With Illustrations. Crown 8vo. 4s. 6d.

Astronomy.

A HISTORY OF ASTRONOMY. By ARTHUR BERRY, M.A. Fellow of King's College, Cambridge. With over 100 Illustrations. Crown 8vo. 6s.

General Science.

THE FACE OF NATURE. Popular Readings in Elementary Science. By the Rev. C. T. OVENDEN, D.D., Dean of Clogheo. With numerous Illustrations. F'cap 8vo. 2s.

EARLY CHAPTERS IN SCIENCE. A FIRST BOOK OF KNOWLEDGE OF NATURAL HISTORY, BOTANY, PHYSIOLOGY, PHYSICS AND CHEMISTRY FOR YOUNG PEOPLE. By MRS. W. AWDRY (Wife of the Bishop of South Tokyo, Japan). Edited by W. F. BARRETT, F.R.S., Professor of Experimental Physics in the Royal College of Science for Ireland. With nearly 200 Illustrations. Crown 8vo. 6s.

ENGLISH.

Grammar and Composition.

SCHOOL MANUAL OF ENGLISH GRAMMAR. With Historical Introduction and copious Exercises. By T. D. HALL, M.A. 3rd Edition, completely revised and brought up to date. With appendices. Crown 8vo. 2s. 6d.

This edition has been to a great extent re-written, and is amplified so as to include the whole of the necessary course of Elementary English required in the new examination for the training of teachers.

PRIMARY ENGLISH GRAMMAR for Elementary Schools. With 134 Exercises and carefully graduated parsing lessons. By T. D. HALL, M.A. 14th Edition. 16mo. 1s.

THE USE OF WORDS. The Accidence of Grammar a explains the Parts of Speech. By Miss GEORGINA KINNEAR. Fcap 8vo. 1s.

MANUAL OF ENGLISH COMPOSITION. With Copious Illustrations and Practical Exercises. Suited equally for Schools and for Private Students of English. By T. D. HALL, M.A. 6th Edition. Crown 8vo. 3s. 6d.

ESSAY WRITING FOR SCHOOLS. A Practical Exposition of the Principles of this form of Composition. By L. COPE CORNFORD. Crown 8vo. Cloth extra. 2nd Impression. 4s. 6d.

ENGLISH COMPOSITION AND ESSAY WRITING. By JOHN KEEFE, Principal of the Civil Service Academy, Liverpool and Manchester. Specially adapted for Civil Service Examinations and suitable alike for beginner and advanced Student. Crown 8vo. 2s. 6d.

HINTS ON COMPOSITION. By JOHN KEEFE. 3rd Edition, considerably enlarged. Demy 8vo. 6d.

CIVIL SERVICE SPELLING AND DICTATION BOOK By JOHN KEEFE. Revised and enlarged Edition. Crown 8vo. 1s. 6d.

Literature and Texts.

STUDENTS' MANUAL OF ENGLISH LITERATURE. A History of English Literature of the chief English Writers founded upon the Manual of THOMAS B. SHAW. A new Edition thoroughly revised. By A. HAMILTON THOMPSON, B.A., of St. John's Coll., Cambridge, and Univ. Extension Lecturer in English Literature. With Notes, etc. Crown 8vo. 7s. 6d.

SMALLER HISTORY OF ENGLISH LITERATURE. Giving a Sketch of the Lives of our Chief Writers. By JAMES ROWLEY. 14th Impression. Small Crown 8vo. 3s. 6d.

STUDENTS' SPECIMENS OF ENGLISH LITERATURE. Selected from the BEST WRITERS, and arranged Chronologically. By T. B. SHAW, M.A. 12th Impression. Crown 8vo. 5s.

ENGLISH—continued.

Literature and Texts—continued.**SMALLER SPECIMENS OF ENGLISH LITERATURE.**

Selected from the Chief Authors and arranged chronologically. By JAMES ROWLEY. With Notes. Small Crown 8vo. 3s. 6d.

While the "Smaller History of English Literature" supplies a rapid but trustworthy sketch of the lives of our chief writers, and of the successive influences which imparted to their writings their peculiar character, the present work supplies choice examples of the works themselves, accompanied by all the explanations required for their perfect explanation. The two works are thus especially designed to be used together.

OUTLINES OF ENGLISH LITERATURE. By WILLIAM RENTON. With Illustrative Diagrams. Crown 8vo. 3s. 6d.

SHAKSPERE AND HIS PREDECESSORS IN THE ENGLISH DRAMA. By F. S. BOAS, Professor of English Literature, Queen's College Belfast. Crown 8vo. 6s. Library Edition, on larger paper. 7s. 6d.

THE JACOBEEAN POETS. By EDMUND GOSSE. Crown 8vo. 3s. 6d.

THE ENGLISH NOVEL, FROM ITS ORIGIN TO SIR W. SCOTT. By WALTER RALEIGH, Professor of English Literature in Glasgow University. Crown 8vo. 2s.

INTRODUCTION TO POETRY. (Poetic Expression, Poetic Truth the Progress of Poetry.) By LAURIE MAGNUS, M.A. F'cap 8vo. 2s.

ÆSOP'S FABLES. A NEW VERSION. Chiefly from the Original Sources. By REV. THOMAS JAMES. With 100 Woodcuts. Illustrations by JOHN TENNIEL. Crown 8vo. 2s. 6d.

THE PUBLIC SCHOOL SPEAKER. Compiled by F. WARRE CORNISH, M.A., Vice-Provost of Eton College. Large 8vo. 7s. 6d.

This work, as its name implies, is a collection of pieces suitable for recitation at school "speeches." The Editor has made his selection in the widest manner and from various languages—Greek, Latin, English, German, French and Italian. He has included drama, general poetry, orations and other prose pieces, ancient and modern. The Editor is in hopes that no serious omissions can be found, unless it be those intentional ones from classics that are at everyone's command, which he has left out to make room for those more difficult of access.

It will be noticed that he has in many cases given an extract longer than is sufficient for a single recitation—he has done this advisedly with a view to affording greater scope for individual requirements and individual taste.

The publisher is of opinion that the Speaker will be found the most complete extant.

Précis Writing, Book-keeping, &c.

By JOHN KEEFE.

INDEXING AND PRÉCIS WRITING. For the use of Candidates preparing for Civil Service and other Examinations. 212 pages. Crown 8vo. 2s.

CIVIL SERVICE BOOK-KEEPING. Examination Papers set for Second Division Clerkships, ranging over twelve years. F'cap 4to. 1s.

COPYING MANUSCRIPT. Facsimiles of Exercises set in recent Civil Service Examinations. F'cap folio. 2s.

COPYING TABULAR STATEMENTS. 36 Exercises set in recent Civil Service Examinations, with hints for practice. 4to. 1s.

CIVIL SERVICE PENMANSHIP. Varied specimens of Civil Service Penmanship approved by the Examiners. 3rd Edition. F'cap folio. 1s.

DIGESTING RETURNS INTO SUMMARIES. For the use of Candidates preparing for Civil Service and other Examinations. Royal 8vo. 2s. 6d.

MODERN LANGUAGES.

French Grammar and Composition.

GRAMMAIRE FRANÇAISE: A French Grammar for the use of the Middle Classes in Schools. By W. MANSFIELD POOLE, M.A., and MICHEL BECKER. 2nd Impression. Crown 8vo. 2s. 6d.

FRENCH AND GERMAN PICTURE VOCABULARY, IN Phonetic and Ordinary Transcript. By W. MANSFIELD POOLE, M.A. Crown 8vo. 3s. 6d.

COMMERCIAL FRENCH. In Two Parts. (Part I., 3rd Impression.) By W. MANSFIELD POOLE, M.A., Modern Language Master at the Royal Naval College, Osborne, and MICHEL BECKER, Professor at the Ecole Alsacienne, Paris; Author of "L'Allemand Commercial," and "Lectures Pratiques d'Allemand Moderne." With a Map in each Volume. Crown 8vo. 2s. 6d. each.

FRENCH COMMERCIAL CORRESPONDENCE. By PROFESSOR CHARLES GLAUSER and W. MANSFIELD POOLE, M.A. Crown 8vo. 4s. 6d.

INTERMEDIATE FRENCH GRAMMAR AND OUTLINES OF SYNTAX, with Historical Notes. By G. H. CLARKE, M.A., of Hymers College, Hull, and L. R. TANQUEREY, B.ès.L. Crown 8vo. 3s. 6d.

BY SIR WILLIAM SMITH.

FRENCH PRINCIPIA, Part I. A FIRST FRENCH COURSE, containing Grammar, Delectus and Exercises, with Vocabularies and Materials for French Conversation. 18th Impression. Crown 8vo. 3s. 6d.

APPENDIX TO FRENCH PRINCIPIA, Part I. Containing Additional Exercises and Examination Papers. Cr. 8vo. 2s. 6d.

FRENCH PRINCIPIA, Part II. A READING BOOK. Containing Fables, Stories, and Anecdotes, Natural History, and Scenes from the History of France. With Grammatical Questions, Notes, and copious Etymological Dictionary. 9th Edition. Crown 8vo. 4s. 6d.

FRENCH PRINCIPIA, Part III. PROSE COMPOSITION. Containing a Systematic Course of Exercises on the Syntax, with the Principal Rules of Syntax. Crown 8vo. 4s. 6d.

THE STUDENT'S FRENCH GRAMMAR: PRACTICAL AND HISTORICAL. FOR THE HIGHER FORMS. By C. HERON-WALL with INTRODUCTION by M. LITTRÉ. Crown 8vo. 6s.

A SMALLER FRENCH GRAMMAR. FOR THE MIDDLE AND LOWER FORMS. Abridged from the above Work. 2nd Edition. Crown 8vo. 3s. 6d.

FRENCH STUMBLING BLOCKS AND ENGLISH STEPPING STONES. By FRANCIS TARVER, M.A., late Senior French Master at Eton College. Fcap. 8vo. 2s. 6d.

Mr. Francis Tarver's skill as a teacher of French to Englishmen is well known. His thorough knowledge of *both* languages, and his thirty years' experience as a master at Eton, have afforded him exceptional opportunities of judging what are the difficulties, pitfalls, and stumbling-blocks which beset the path of an Englishman in his study of French.

THE TECHNICAL SCHOOL FRENCH GRAMMAR. By DR. W. KRISCH, sometime Teacher of Latin and Greek at the Birmingham Midland Institute, Examiner in Modern Languages to the Midland Counties' Union of Educational Institutions. Crown 8vo. 2s. 6d.

MODERN LANGUAGES—*continua.**French Literature and Texts.*

- THE INTERMEDIATE FRENCH READER.** Edited, with Historical, Biographical, and Grammatical Notes, by MAURICE A. GEROTHOHL, B.Phil., L.ès-L., F.R.S.L., Examiner to the Oxford and Cambridge Schools Examination Board. Crown 8vo. 2s. 6d.
- FRENCH LITERATURE.** By H. G. KEENE, Wadham College, Oxford, Fellow of the University of Calcutta. Crown 8vo. 2s.
- CHRONIQUE DU RÉGNE DE CHARLES IX.** By PROSPER MÉRIMÉE. Prepared and Edited for the use of Schools by Professor ERNEST WEEKLEY, M.A., University College, Nottingham. With Historical and brief Grammatical Notes, and a Critical Essay. Crown 8vo. 2s. 6d.
- UN EPISODE DE WATERLOO.** (Extrait de la Chartreuse de Parme.) Par STENDHAL. Adapted and Edited by MAURICE A. GEROTHOHL. 2s.
- A COMPANION TO FRENCH VERSE.** With Poems for Recitation. By the Rev. H. J. CHAYTOR, M.A. 2s. 6d.

German.

- COMMERCIAL GERMAN.** In Two Parts. By GUSTAV HEIN, University of Berlin, and Lecturer in German (Honours) to the University of Aberdeen, and MICHEL BECKER.
- PART I., Second Impression, with a Map. Crown 8vo. 3s. 6d.
- PART II. with a Map. Crown 8vo. 4s. 6d.
- FRENCH AND GERMAN PICTURE VOCABULARY, in Phonetic and ordinary Transcript.** By W. MANSFIELD POOLE, M.A. Crown 8vo. 3s. 6d.
- GERMAN PRINCIPIA, Part I.** A FIRST GERMAN COURSE. Containing Grammar, Delectus, Exercises, Vocabulary and materials for German Conversation. 10th Impression. Crown 8vo. 3s. 6d.
- GERMAN PRINCIPIA, Part II.** A READING BOOK. Containing fables, Stories, and Anecdotes, Natural History, and Scenes from the History of Germany. With Grammatical Questions, Notes and Dictionary. 6th Impression. Cr. 8vo. 3s. 6d.

Italian.

- ITALIAN PRINCIPIA, Part I.** A FIRST ITALIAN COURSE. Containing a Grammar, Delectus, Exercise Book, with Vocabulary, &c. By LUIGI RICCI, Professor at King's College, University of London. Thoroughly revised and in part re-written by C. F. COSCIA, Professor of Italian in the University of Oxford. Crown 8vo. 3s. 6d.
- ITALIAN PRINCIPIA, Part II.** A FIRST ITALIAN READING-BOOK. Containing Fables, Anecdotes, History, and Passages from the best Italian Authors, with Questions, Notes, and an Etymological Dictionary. Crown 8vo. 3s. 6d.

Spanish.

- SPANISH PRINCIPIA, Part I.** A FIRST SPANISH COURSE. Containing Grammar, Delectus and Exercise Book, with Vocabulary. By H. J. WEINTZ. 3s. 6d.
- PRACTICAL SPANISH.** A GRAMMAR OF THE SPANISH LANGUAGE. With Exercises, Vocabulary, and Materials for Conversation. By DON FERNANDO DE ARTEAGA, Taylorian Teacher of Spanish in the University of Oxford. 2 Parts. Crown 8vo. 7s. 6d.
- This volume, conjointly with "Spanish Principia," will be found to cover the requirements of examinations of a degree of difficulty up to and including that of the advanced grade of the Society of Arts.

UNIVERSITY OF CALIFORNIA LIBRARY
Los Angeles

This book is DUE on the last date stamped below.

REC'D ID-IRL

100/100

JUN 07 1990

Form L9-100m-9,'52 (A3105)444

THE LIBRARY
UNIVERSITY OF CALIFORNIA
LOS ANGELES

LA Leighton -
635 The boy and his
L53b school

University of California Los Angeles



L 006 024 371 4

UC SOUTHERN REGIONAL LIBRARY FACILITY



AA 000 706 039 5

LA
635
L53b

